FEEDSTUFFS

The Weekly Newspaper for the Feed Industry

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Prospects for More Poultry, Lower Prices Pointed Out

CHICAGO—Increased supplies of both eggs and poultry and subsequent lower prices have been predicted for the months and year ahead by the Poultry Survey Committee.

The committee made these predictions:

● "Favorable egg prices will cause the egg-type chick hatch during the first half of 1961 to be about 10-12% above a year earlier. If this increase occurs, returns to producers for the laying year beginning October, 1961 will be significantly lower than for

(Turn to POULTRY, page 8)

Economist Suggests 'Specification Lending' For Ag Financing

DENVER — The possibility of "specification lending" serving as a means to help satisfy the credit requirements of producers in the 1960's was suggested here at the recent ninth National Agricultural Credit Conference of the American Bankers Assn.

Dr. G. B. Wood, head, department of agricultural economics, Oregon State College, said, "There is growing evidence of a need for some new type

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Far Reaching FDA Regulations Cited

By ROGER BERGLUND
Feedstuffs Managing Editor

KANSAS CITY—If ever there was any doubt about the far-reaching effects of Food and Drug Administration regulations on the mixing and distribution of drug-containing feeds, such doubt should have been dispelled by discussions at the Midwest Veterinary-Nutrition Conference this week in Kansas City.

It appeared that, when it comes to use of a "new drug" substance in feeds, anyone involved in mixing the feed is affected by the requirement that the mixer have an effective FDA application for use of the substance. It would seem that, under interpretations which were voiced, no one is exempt. Veterinarians, local mixers and farm mixers, as well as conventional feed manufacturers—all are subject to FDA regulations.

An industry view has been that, while legally FDA controls extend to the final mixing of a finished medicated feed, full controls need not extend to the local mixer using a concentrate made by a feed manufacturer who handles the basic drug premix and complies with all FDA requirements.

A talk by an FDA official and subsequent discussions brought out these points:

1. A veterinarian's prescription does not eliminate the need to meet certain new drug and antibiotic regulations. If a drug to be added to a feed is considered a new drug, the drug must have an effective application covering its use. A veterinarian may prescribe only those final dosage forms for which a new drug application has been made effective. Also, a feed mixer can mix a new drug in a feed only if he has an effective new drug application or has an effective Antibiotic Form 10 covering the par-

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Ag Secretary Appointment Interpreted

By JOHN CIPPERLY
Feedstuffs Washington Correspondent

WASHINGTON — President-elect John F. Kennedy has appointed the defeated Democratic governor of Minnesota, Orville Freeman, to be his first Secretary of Agriculture.

The appointment is interpreted here as indicating that the new administration's farm policy at the outset will probably be influenced by the Farmers Union Grain Terminal Assn. in St. Paul, with which Sen. Hubert Humphrey of Minnesota has close ties.

In this connection, one observation is that one of the recently appointed executives of FUGTA, a big northwest grain cooperative, has been widely associated with campaigns to stimulate edible oil donation programs for foreign nations through charitable organizations.

Authorization of such programs is now available under existing farm legislation, and implementation of such programs might be expected to result from suggestions to the new secretary by persons who probably will be influential in policy matters.

It indicates that soybean and bean oil prices should be firm to steady and possibly take a market jump as the uninformed speculators take hold

(Turn to APPOINTMENT, page 4)

Kansas City CSS Office Notes Need For Storage Space

KANSAS CITY—The need for additional grain storage space was underscored last week by Donald E. Smith, director of the Kansas City Commodity Stabilization Service office.

In a letter to country warehousemen, accompanying a questionnaire on grain storage needs, Mr. Smith said: "It appears that our problem may be more difficult next year due to the bountiful 1960 grain harvest,

(Turn to STORAGE, page 95)

'Vast' Changes in Poultry Industry Shown by Census

DENVER—A capsuled view of the vastly changed and still changing American poultry industry was given poultrymen during the recent convention of American Farm Bureau Federation at Denver.

Intense interest in the move toward commercialization was evidenced during the convention's poultry conference. Producers learned of the factors that have influenced the trend to commercial poultry production and some of the pitfalls of the industry.

Dr. A. William Jasper, assistant director of the AFBF's commodity division, presented preliminary Census of Agriculture findings which indicated

(Turn to CHANGES, page 4)

Program Announced For NTF Convention

MT. MORRIS, ILL.—The National Turkey Federation has announced the program for its Jan. 4-7 convention at the Conrad Hilton Hotel, Chicago.

Despite the trend to larger turkey flocks and fewer growers, NTF is predicting that a new convention attendance will be set. Last year, nearly 5,000 NTF conventioners meeting in Minneapolis broke the attendance record which had stood since the 1956 Chicago convention.

NTF says facilities of the hotel chosen for the 1961 convention make it possible for practically all of the convention activities to be held in one building. Only the ladies' luncheon and fashion show will be staged elsewhere.

Because of the large number of research projects to be reported, two

(Turn to NTF, page 91)

Business Opportunities as Well as Problems Cited

New Efforts to Better Feed-Vet Relations Under Way, Midwest Conference Indicates

KANSAS CITY—Renewed interest in improving veterinarian-feed man relationships, in bringing about more teamwork in meeting the opportunities as well as the problems found in a fast-changing animal agriculture, appear to be in the making.

New developments in this broad area—not only in top policy level discussions but in some grass roots actions in the field—were reflected in talks at the Midwest Veterinary-Nutrition Conference this week and, in fact, in interest in the conference itself.

Many persons in both the feed industry and veterinary profession have frankly despaired of bringing the two groups closer together in actual working relationships, but it is evident that some top-side people in both groups think otherwise and promise action as well as talk. Furthermore, specific instances of how feed men and vets are teaming up in animal health and feed programs were cited.

Many of the bones of contention were stated frankly—such things as the feed man's selling animal health products and making what are said to

(Turn to NEW EFFORTS, page 94)

FEEDSTUFFS *Features This Week*

BEEF NUTRITION—Beef cattle nutrition papers presented at the American Society of Animal Production meeting are summarized on page 10.

$1 MILLION MILL—Seventy-two different lines of branded feeds are produced in a new $1 million Canadian mill. Page 18.

SWINE STUDIES—This article presents information on a Kentucky swine nutrition research. Page 54.

PELLETED FEEDS FOR BEEF—Pelleting of feeds for beef cattle is discussed from the practical and economical standpoints. Page 60.

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HAPPY HOLIDAYS

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Top of the Hopper

ALTHOUGH HE WAS mentioned prominently in the immediate post-election speculation, the name of Gov. Orville L. Freeman of Minnesota had all but disappeared from the dopesters' lists of likely choices for secretary of agriculture in recent weeks. So his appointment to this important and politically highly vulnerable post has set everyone concerned with the nation's future farm program scurrying to match the measurements of this young man against the very imposing cloak of authority and leadership he will shortly slip into.

Some of his specifications that bear measuring are these: He is committed to a philosophy of raising farm income, particularly that of lower income farms, through higher supports. His chief economic advisor on agricultural matters advocates strict production controls to make supports effective. For the most part, his allies and counselors are those of his political "godfather," Sen. Hubert Humphrey (D., Minn.), whose thoughts on the farm program are well known. Gov. Freeman believes in direct and positive government action.

Gov. Freeman obviously has accepted the post with full knowledge of the grave risk to his political future. It is a job which creates enemies faster than it creates friends. The President-elect has appointed him against a background of sweeping promises to "solve the farm problem." This is a large order for anyone, and it suggests an extremely uncomfortable position for the ambitious Mr. Freeman.

The administrative latitude available to the new secretary will permit many opportunities for actions which reflect his economic thinking and that of his political associates, although he is almost certain to encounter some obstacles on the legislative front, in spite of Democratic majorities in Congress.

Many citizens would much prefer to see Gov. Freeman perform differently than they expect he will, but it is more likely that his appointment could once and for all provide proof positive that the economic problems of agriculture cannot be solved by political means.

UNTIL RECENTLY, California has been the leading producer of market turkeys. But then Minnesota forged ahead, and rapid gains are expected in some other parts of the central region of the country. As production expands in these areas, some in California look for competition for markets to increase and possibly for gains in output of market turkeys to tend to slow or halt in their state. If this should be the case, they think that they can specialize still more in breeding. They contend that they have the weather and know-how for this and that they can be a relatively more important factor in this part of the turkey business.

THE OWNER OF A NEWLY-AUTOMATED cattle feedlot confided to a Feedstuffs reporter that he plans to have his 12-year-old son push the buttons to run the operation. Handling such as enterprise probably isn't quite that easy, but certainly the kids have smartened up mechanically and electrically these past several years, and the boy probably could do a pretty good job. The idea has considerable merit as a late Christmas shopping tip: Give your boy one of these setups instead of an Erector set.

REMEMBER THE TIME magazine cover story about the Indiana cattle feeder, Warren North? He is quite an accomplished musician and, according to Time's report, relaxes from farm duties at the console of an organ. Well,

(Turn to TOP OF THE HOPPER, page 91)

How's Business?

AN EVERY WEEK REVIEW OF FORMULA FEED BUSINESS VOLUME, INCLUDING PRICE, SUPPLY AND DEMAND TRENDS

Active demand for cattle (especially dairy), poultry and hog feeds was reported from most regions of the nation this week. Heavy snow cover in the East prompted a more bullish attitude. And some trade reports indicated that rising export business played a part in stronger ingredient markets.

This week's wholesale feedstuff price index of 75.6 was 2.9 higher than the week before, but still below the 80.5 mark of a year earlier. A gain of 1 point to 60 was made in the feed-grain index. A year ago the index was 63.6. The hog-corn ratio, however, slipped 1 point to 17.6, compared with 11.1 the same week a year earlier. (Feed markets in detail on pages 92-94).

Northwest

Demand stimulates demand.

When colder weather arrived in the Northwest a couple of weeks ago, feed trade climbed inversely proportional to the drop in temperature. Increases in cattle, hog and some poultry feed sales resulted in greater movement of ingredients. Feedstuffs prices advanced, and so did prices on formula feeds.

These advancing prices attracted buyers. In addition to producers calling for more feeds, manufacturers and dealers dug deeper into ingredient supplies because of the rising market.

Soybean meal, millfeeds, animal proteins and other ingredients climbed to still higher price levels this week and manufacturers followed right along on formula feeds.

It was apparent this week that the Christmas and New Year holiday weeks will slow trading some, which, of course, is nothing out of the ordinary.

Most manufacturers contacted said this week's business was slightly better than the preceding week's—but the remaining days of December will have to produce good activity before total volume for the month will equal that of the same month of 1959.

Central States

Mills are working all along the line on a full 40-hour week or over—not much over, but still very encouraging. Price levels have moved up again, reflecting the sharp advances in some of the constituent feeds such as soybean oil meal, bran and middlings, all of which are up $4-$5 ton over a week back.

Demand for hog and cattle feeds has been on the mend. Broiler feed and egg mash feed sales have improved also. As a matter of fact, the broader demand uppears to have hit all lines.

Weather over most of the Corn Belt has been the kind that stimulates demand, and especially when inventories had been permitted to dry up and almost blow away.

Northeast

A return of cold weather stimulated sales of formula feed. Although orders increased, running time held at 36 hours but they were fully utilized. If the cold, snowy weather continues it could stretch out running time next week.

The ingredient market was on the rise but end products were somewhat mixed.

Midwestern eggs gave ground but the New York City blizzard tended to hold prices. In the western New York area eggs were steady with grade A extra large white eggs quoted at 63@67¢ doz., wholesale.

Broiler prices firmed up ½@1¢ lb. in most areas.

The formula feed sales pattern held unchanged. Dairy feeds accounted for most of the sales tonnage and egg mashes provided the most profit for the mixers.

There was a smattering of turkey feed sold but that will dwindle because birds held over for the Christmas trade will go on the "chopping block" this week, leaving only breeder flocks to be fed. Broiler feed demand continued at a low ebb.

Pacific Northwest

Representative Oregon, Washington and Idaho feed manufacturers reported this week that formula feed movement continued at a good seasonal volume with slight increases noted for both poultry and dairy rations.

Feedstuffs prices ruled firm to higher with the market affected by severe winter weather at major ingredient production points, a general tightening of feedstuff supplies and an increase in supplemental feeding in most areas.

Sharpest price advance was posted by soybean meal which gained $4-$4.50 ton as Eastern offerings tightened. Wheat millfeed markets advanced mostly $2 ton at Seattle and Portland. Trade sources reported offerings were on the limited side at most quarters where a strong holding tendency ruled.

Animal protein feeds averaged firmer with stronger meat and bone meal prices quoted. Listings for whole feeding grains were firm to mostly strong with slight advances for corn, milo and barley.

Pacific Northwest alfalfa hay trading was seasonally moderate this week. Current buying interest was somewhat restricted since most large dairy and livestock feeders purchased a large portion of their winter hay needs earlier in the season. Alfalfa supplies were generally adequate to plentiful, but producers were not pressing for sales and prices held fully steady within previous ranges.

Ohio Valley

The coldest weather on record for mid-December, with temperatures ranging to 10 or more degrees below zero, hit the Ohio Valley this week. The valley area also was covered with 10 or more inches of snow—all of which precipitated a quite sharp increase in business because farmers were being forced to the indoor feeding of their poultry and livestock.

While the weather has posed problems of deliveries to the many retail outlets where low inventories have been the rule for many months, manufacturers reported that trucks were getting through with minimum delays, excepting to the more isolated mountain areas in eastern Ohio and Kentucky.

The improved business is being reflected in sales of practically all types of formula feeds, particularly those for hogs and cattle.

The sub-zero weather and snow al-

(Turn to MARKETS, page 97)

Veterinary Prescription of Drugs for Feeds—Where Do We Stand Today?

By Dr. LaVerne C. Harold
Food and Drug Administration

Before leaving my office in Washington, I picked up two letters from my desk which I believe will be of interest to you. One of these letters is from a feed manufacturer from the state of Minnesota, and the other is from a veterinarian from the state of Pennsylvania. Although these two letters come from two different sources and from two different areas geographically, the question that is raised in both letters is, for all practical purposes, one and the same. The main difference between the letters is that the question was presented from different points of view for different reasons.

The feed manufacturer in his letter wants to know if he can mix a drug, such as reserpine, in a feed on the prescription of a veterinarian even though such drug may be in violation of the new drug provisions or the certifiable antibiotics provisions of the Federal Food, Drug and Cosmetic Act. He wants to know if he is permitted to mix a new drug in a feed on the prescription of a veterinarian when he himself does not have a new drug application covering that particular drug, or when he does not have an effective Antibiotic Form 10 when such drug is combined with a certifiable antibiotic.

The letter from the veterinarian, on the other hand, runs along the same line but from a different point of view. He wants to know why it is that a feed mixer tells him that he cannot mix a certain drug in a feed which he has prescribed. He wants to know what is to prevent him, as a veterinarian, from prescribing a drug in feed at any dosage level and at any combination of drugs that he believes necessary for proper treatment of diseases in animals. The veterinarian says that he is a licensed veterinarian and that he feels it is his prerogative to treat animals under his care as he sees fit. He says that there exists a bona fide doctor-patient relationship between himself and his patients and he cannot understand why a feed mixer should tell him that he cannot mix a certain drug in a feed although under his prescription.

The question raised by the feed mixer on the one hand and by the veterinarian on the other applies to the same thing. This question is "What can a veterinarian prescribe and what can a feed mixer mix in feeds?"

FEDERAL FOOD AND DRUG REGULATIONS—In answering this question, I believe the first thing we should do is to classify and define the drugs that normally are used in feeds. Categorically, our drugs fall into two general classes. We have the drugs which are subject to the certifiable antibiotics section (Section 507 of the Federal Food, Drug, and Cosmetic Act), and we have the drugs which may be subject to the new drug section (Section 505 of the same act). All veterinary drugs other than the "not new drugs" are considered under one of these two sections of the law; they are not considered under both.

The certifiable antibiotic section of the law covers these drugs containing, in whole or part, penicillin, streptomycin, chlortetracycline, chloramphenicol, or bacitracin, or any derivatives thereof. An example of a derivative is dihydrostreptomycin which is a derivative of streptomycin. Another example is tetracycline, a derivative of chlortetracycline, and another is zinc bacitracin, a derivative of bacitracin. Feeds containing one or more of these certifiable antibiotics or their derivatives can be used only as prescribed in the certifiable antibiotic feed regulations.

The other section of the law is the new drug section. Drugs other than certifiable antibiotics may or may not be considered under this section. How the drugs are handled depends upon whether they are considered "new drugs" or "not new drugs." For a "new drug," the safety of the drug has not been fully determined or recognized through extensive uses. These drugs require that a "new drug application" be submitted and allowed to become effective before they can be used.

If the new drug is in combination with a certifiable antibiotic, then the drug would be subject to the certifiable antibiotic provisions of the law and under these circumstances an Antibiotic Form 10 would be required. For all practical purposes an Antibiotic Form 10 is identical to a new drug application. The one exception is the added requirement that the efficacy of the antibiotic drug must be established. However, under either form of application, the law limits the distribution of new drugs to the final dosage form described in the application. This is the only dosage which has been proven safe for use.

If a drug is considered "not a new drug," it is not subject to the new drug provisions. A certain number of our drugs cease to be classified as new drugs when, in the opinion of qualified experts, sufficient experience has been gained in the use of these drugs to warrant their removal from the new drug classification. These drugs are then removed from new drug status. However, the drugs are still subject to other provisions of the law for adulteration or misbranding. Of course, these "not new drugs" may again become "new drugs" under different conditions of use and representations.

What drug a veterinarian can prescribe and what drug a feed mixer can mix in a feed depends to a large extent upon the classification in which the drug falls.

EDITOR'S NOTE: *This article is the text of a talk presented at the Midwest Veterinary-Nutrition Conference in Kansas City. Dr. Harold is assistant veterinary medical director of FDA. The talk is of importance to feed men because of the statements and comments on control of medicated feeds in general, as well as the information on veterinary prescription of drugs in feeds.*

WHO CAN PRESCRIBE WHAT AND TO WHOM?—In general, we can say that a veterinarian can prescribe and a feed mixer can mix in a feed a drug which is generally recognized as safe for use in the animals being treated and which is safe to the consumers of the edible products from these animals. The question of safety to the consumer is, of course, related to the problem of drug residue in the edible tissues of the animals, and the milk and eggs they produce.

From the standpoint of the certifiable antibiotics, the drugs that can be used in feeds are those as prescribed in the antibiotic feed regulations. Data have been submitted to the Food and Drug Administration to show that these drugs are safe not only to the animal but to the consumers of the edible products from the treated animal. Any use of the drug except as provided in these regulations would be in violation. This relates not only to the dosage levels and uses of a drug as outlined in the regulations, but also to the specific dosage form.

If the drug that is to be added to a feed is considered a new drug, then, as I have said before, the drug must have an effective application covering its use. A veterinarian may prescribe only those final dosage forms for which a new drug application has been made effective. Also, a feed mixer can mix a new drug in a feed only if he has an effective new drug application or has an effective Antibiotic Form 10 covering the particular drug in the feed in its final dosage form. Without the appropriate application, the feed mixer is in violation of the law should he mix the drug in the feed. This is true even though he mixes the drug in the feed on the prescription of a veterinarian. Also, a veterinarian that prescribes a drug or any combination of drugs at dosage levels other than those commonly recognized as safe may be doing so illegally.

The question naturally arises: How is a veterinarian or a feed mixer going to know what drugs are considered safe and at what levels? This question plagues many a veterinarian and many a feed mixer. Unfortunately the Food and Drug Administration does not have available for general distribution a complete list of all drugs that may be prescribed for feed use, together with the condi-

(Turn to PRESCRIPTION, page 96)

Chicks Placed in Principal Broiler Areas

(000's omitted)

Week ending	Maine	Conn.	Penn.	Ind.	Ill.	Mo.	Del.	Md.
October 8	1,037	375	778	589	48	643	1,429	1,838
October 15	909	508	698	520	42	518	1,596	1,752
October 22	993	342	595	643	78	602	1,312	1,980
October 29	1,016	381	678	418	78	568	1,447	1,797
November 5	1,053	351	687	654	100	535	1,480	1,801
November 12	1,022	437	808	689	93	551	1,372	1,876
November 19	1,024	403	783	719	111	622	1,514	1,762
November 26	1,039	403	871	645	108	593	1,620	1,697
December 3	1,098	418	828	747	97	673	1,636	1,760
December 10	1,101	413	790	765	61	669	1,587	1,927

Week ending	Va.	W. Va.	N.C.	S.C.	Ga.	Fla.	Ala.	Miss.
October 8	809	326	2,873	315	5,694	202	3,084	1,884
October 15	713	356	2,809	317	5,750	198	3,099	2,027
October 22	684	385	2,746	302	5,624	228	3,053	2,057
October 29	714	353	2,820	308	5,627	205	3,156	2,094
November 5	767	400	2,890	284	5,923	178	3,132	2,179
November 12	867	327	2,876	319	5,968	210	3,110	2,196
November 19	928	394	2,993	339	5,974	184	3,133	2,198
November 26	921	335	2,974	306	5,805	209	3,008	2,244
December 3	913	372	3,043	300	5,795	217	2,960	2,368
December 10	842	410	2,991	324	5,921	224	2,748	2,360

Week ending	Ark.	La.	Texas	Wash.	Oregon	Calif.	Total 22 areas 1960	Total 22 areas 1959
October 8	2,845	346	1,615	256	208	1,033	28,261	24,674
October 15	2,884	319	1,635	218	214	1,024	28,103	23,755
October 22	3,022	337	1,608	257	137	892	27,897	24,066
October 29	2,998	341	1,660	182	158	1,061	28,068	25,712
November 5	3,222	345	1,642	262	126	1,036	29,536	26,271
November 12	3,376	371	1,739	280	194	1,117	29,787	26,884
November 19	3,328	385	1,760	290	210	1,114	30,061	27,133
November 26	3,327	362	1,730	295	182	1,109	29,692	27,416
December 3	3,423	280	1,947	301	206	1,236	30,546	28,868
December 10	3,555	422	1,945	256	212	1,263	30,794	29,054

Condemnations Run As High as 10% In Some S. E. Areas

AUBURN, ALA.—Poultry condemnations in some areas are running as high as 10%, leaders of all branches of the poultry industry in the Southeast were told at a special regional meeting held at Auburn University.

John Tuttle, University of Kentucky, in reporting the 10% figure, said profit margins are disappearing with these high rejections. In fact, he reported that some men are experiencing condemnations 7 or 8% higher than normal.

Poultrymen and others from a 10-state area received this information at a two-day fact finding conference. Present were representatives of the Federal Inspection Service, producers, processors and members of the extension services.

Dr. R. D. Winger, assistant chief of the Federal Inspection Service, pointed out that the purpose of the inspector is not to condemn wholesome birds, but to cull so that those desirable for consumption will not be tossed out at the plants.

"It is hoped that through increased awareness of the causes of the problem, extension workers can take the findings of the research workers to the producers, get them adopted and eliminate some of these costly condemnations," said Jim Hubbard, extension poultry specialist at Auburn.

The work of Dr. Morris Cover, University of Delaware, was discussed by Dr. S. A. Edgar, Auburn, based on Dr. Cover's experiment with 61 flocks showing the primary cause of condemnations was CRD.

It was also shown that birds raised in narrow houses produced fewer condemned birds than those in wide houses. And Dr. Cover's research indicated that drinking water vaccines seemed to be less effective than other systems.

One of the problems discussed was the apparent lack of uniformity of communications inside the inspection service. Since area supervisors are the judge as to when to send out in-

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Ted Harstad Appointed To New Doughboy Post

NEW RICHMOND, WIS.—Theodore (Ted) Harstad, purchasing agent for Doughboy Industries of New Richmond since 1949, has been named to the newly created position of director of purchasing for the company.

Theodore Harstad

His appointment to the new position was announced by James H. Buell, vice president and controller, who said the move was part of a new program which gives each division of the company its own buyers. Under the new arrangement, Mr. Harstad will direct the over-all operation of buying for the divisions.

He has been with Doughboy Industries for 35 years, is a native of Eau Claire, Wis., and is a graduate in pharmacy at Marquette University in Milwaukee.

Helmer Johnson was named purchasing agent for the formula feed division, according to the announcement, and has the responsibility of buying feed ingredients and related supplies. Working with Mr. Johnson as a buyer under the new arrangement is Harold Breed.

In the milling division, Philip Carlson is purchasing agent, and has charge of buying grain for the company's durum wheat products.

APPOINTMENT

(Continued from page 1)

of an already heavily involved open interest in soybeans.

On the grain side, there is less opportunity for sound speculative comment. In the Wheat Belt where farmer cooperatives have been strong, there has been a broad demand for a two-price plan for wheat, providing for full parity on wheat for domestic consumption as food and an open world market for wheat at whatever price it will bring, of course still subject to subsidy payments by the U.S. government.

Wheat, as with corn, is a hotly controversal issue. The small 15-acre wheat farmer exemption would be as badly hurt by the acreage controls which the Kennedy campaign contemplated as they would be under a two-price plan.

For corn, there seems to be nothing in the cards that would require any radical change in the present Benson program which has been operating effectively in the Corn Belt.

The Benson corn program was also geared to cotton, which is now price supported under a lower level than had previously prevailed. It was well known that the cotton phase of the Benson corn-cotton bill had backing of leading cotton state Democratic senators who realized that high price support was killing the cotton economy.

It is this reporter's guess at this time that the Freeman appointment indicates that Sen. Humphrey and the FUGTA will have considerable influence on the Kennedy farm program.

That condition will exist as long as the President-elect finds community of political interest with Mr. Humphrey, who sits in the Senate.

It is interesting to note, however, that the President-elect ignored his formal statement on farm policy made in South Dakota during the early days of the campaign. It would appear that after some of the expected effects of the Kennedy farm program had been examined and reported, Mr. Kennedy preferred to forget the whole issue, or at least realized the damning connotations it evoked.

As far as agriculture is concerned, the Freeman appointment seems to be a political decision, and some say that it represents considerable difference from the "bold new frontiers" that the new President set forth.

The appointment indicates that the Kennedy administration will tend to continue the old policy of trying to solve the farm problem in a political framework. This occurs even though there is an opportunity to bring in new and forceful ideas on farm problems from areas outside the old farm belt, which has a fixation on high price supports and production restrictions.

The Food for Peace program was the brain child of Sen. Humphrey and was appropriated by smart people of the out-going Eisenhower administration as a lively slogan. It never gained headway since informed government sources in world agricultural matters well knew that it was a delusion.

This project of storing U.S. agricultural commodities in foreign storage sources to meet emergency situations such as famine or war is like a housewife sweeping dust under the rug.

Ex-Congressman George McGovern, Democrat of South Dakota, is also a political appointment. He did effect legislation which, if administered liberally, would have greatly damaged producers of feed grains not only in his home state but throughout the Grain Belt. If literally administered at USDA, this legislation would have pushed local prices for feed grains down to the re-sale level of Commodity Credit Corp. stocks, which was generally lower than the market price for producer-owned supplies.

1959 CENSUS OF AGRICULTURE

Percentage Change, 1954 to 1959, as Shown by First State Reports

Factor	North Atlantic (9 states out of 9)	East North Central (5 states out of 5)	West North Central (7 states out of 7)	South Atlantic (5 states out of 8)	South Central (2 states out of 8)	Western (8 states out of 11)	U.S. total (36 states)
Total No. of all farms..	—24.9	—16.6	—12.2	—32.0	—21.4	—18.3	—18.9*
No. of laying flocks (farms reporting chickens 4 mo. old & over).	—41.4	—37.9	—26.3	—42.2	—32.1	—36.3	—34.0
Total No. of chickens 4 mo. old & over	—11.5	—17.8	—17.4	+17.9	—26.8	—11.2	—13.9
No. of farms reporting chicken eggs sold	—39.8	—37.6	—27.3	—48.1	—42.4	—41.6	—34.3
Total dozens of eggs sold	+ 5.4	+10.6	+ 5.4	+84.8	+14.1	+19.3	+11.5
No. of farms reporting turkeys raised	—60.9	—53.3	—26.5	—53.2	—36.4	—52.5	—46.6
No. of turkeys raised....	—32.6	+69.8	+73.5	+ 2.0	+34.2	+ 0.9	+34.4
Total No. of all farms	254,730	666,185	794,516	278,309	245,659	220,066	2,459,465*
Total No. of poultry farms	20,885	10,950	7,804	10,323	1,930	5,025	64,917

*There was a reduction of 574,663 from 1954 to 1959. Of this total, there was a reduction of 122,146 farms as a result of the Census change in the definition of a farm, accounting for four percentage points of the 18.9% reduction in total farm numbers.

States included in incomplete regions—South Atlantic: Delaware, Georgia, Maryland, Virginia and West Virginia. South Central: Kentucky and Oklahoma. Western: Colorado, Idaho, Montana, Nevada, Oregon, Utah, Washington and Wyoming.

CHANGES

(Continued from page 1)

that while the number of farmers who sell eggs had decreased 34% during the past five years, the actual number of eggs sold increased 11.5%.

During the same period, the number of farmers raising turkeys fell by nearly 50%; still turkey production climbed 34.5%, he said.

Dr. Jasper disclosed that absence of statistics from seven of the 16 southern states prevented accurate figures on broiler output. It was clear, however, that greater numbers of broilers were raised despite a declining number of farmers in broiler production.

"It become evident when the 1950 Census was published that some significant changes were taking place in the industry," he said. "But it was with the 1954 Census that many of us were jolted into realizing just how rapidly the change was taking place."

Total Flocks

Reviewing briefly, Dr. Jasper explained that the total number of laying flocks in the U.S. declined from 4.2 million in 1950 to 3.4 million in 1954. This is a drop of almost 20%. The number of layers in those flocks remaining was down about 8%. Even so, egg production remained about the same.

During this period, the flocks with less than 200 birds fell by the wayside most often. And the flocks with 3,200 or more birds jumped from about 2,900 to almost 6,500, a 125% gain.

Preliminary data from the 1959 Census indicates that these earlier changes are continuing—perhaps at an accelerated pace.

"There are 64,917 commercial poultry farms in the 36 states reported to date in the new Census," says Dr. Jasper, "a commercial poultry farm being one which derives all or most of its income from the poultry enterprise. Projecting this to 48 states, we may have fewer than 100,000 commercial poultry farms."

The new Census shows that we have a total of 1,409,934 farms in the 36 states reporting chickens on hand 4 months old and over. This represents a decline of 34% from 1954. The total number of chickens on these farms was down almost 14% from five years earlier.

The early reports also show a total of 867,706 farms that reported selling chicken eggs in 1959. This represents a five-year decrease of 34%. Even so, the total number of eggs sold from these farms was up 11.5% from 1954

Turkey farms have declined, too. The total number of farms reporting turkeys raised in the 36 states declined almost 47%—a drop to 43,735 farms. Again, numbers were up with these farms raising 34% more turkeys in 1959 than in 1954.

Commercial Trend

Egg production is moving progressively to a commercial basis because of a desire of large retail outlets to deal with a smaller number of egg distributors. That fact was explained by S. Lew Ray, chief of the Colorado Department of Agriculture division of markets.

Mr. Ray said the trend also was strengthened by demand of retailers and consumers alike for more uniform quality eggs.

He cited three principal reasons for the apparent failure of the now-famous "Kansas cage program":

1. Research on consumer demand was not sufficient to indicate the necessity of merchandising on a AA grade basis.

2. Some of the financing was faulty. Financing of capital production items, normally a long-range proposition, was treated on a short-term basis.

3. Lack of sound sales analysis made the minimum, fixed paying price unrealistic.

California Operations

W. Claude Potter, AFBF poultry advisory committee chairman and a California started pullet raiser, told the group that the bulk of California's egg production has moved from northern to southern California.

Most of California's egg layers are kept in cages. The tendency now is to use 10 or 12 by 18 in. cages in which three hens are kept.

The fly problem in California is acute. Poultrymen are blamed for all of the trouble in spite of the fact there are other sources of flies. Some think that the future of California's poultry industry is tied to how successfully the fly problem is solved. Cooperatives are working with Farm Bureau in developing stockpiling operations where manure can be dried and sold to citrus growers.

Rejection Problem

Paul Bandy, AFBF poultry advisory committeeman and a broiler grower from Georgia, described the southern poultry industry and pointed out the seriousness of the poultry rejection problem. "Southerners feel that poultry inspectors are inadequately trained," he said. "In addition, they feel a need for an expanded research approach to solving the unduly high condemnation rate."

Dr. Robert E. Moreng, head of the Colorado State University poultry department, told the audience that a common characteristic of large-scale poultry endeavors is concentration of bird numbers. With this, control of environment becomes important.

In a slide presentation, Dr. Moreng showed various attempts to solve environment problems, including the use of cages, slat flooring, solar houses and automatic manure removal.

He described the Denver "Merry-Go-Round" poultry house where one girl can handle 6,000 birds with a half day's labor by pushing buttons and using of punch cards. "We still have a long way to go in environment control, however," Dr. Moreng said.

Stacey Cole, New Hampshire Farm Bureau president, AFBF board member and poultry committeeman, described the transition from a hatching egg industry in New England to a market egg situation.

"This step forced producers to finally recognize the importance of the consumer," he said. "The result was to produce a different type of bird to meet consumers' requirements, to merge their cooperative structure, and to develop newer approaches to marketing to meet market demands."

Mr. Cole cautioned that relatively good times in the poultry business, such as the present, are the times to shore up poultry production and marketing operations against the difficult times. History shows, he said, that farmers turn from their general organizations to price-oriented movements when difficulties become pressing.

Cargill Appoints Two Executive Vice Presidents

MINNEAPOLIS — Cargill, Inc., named Fred M. Seed and H. Robert Diercks to executive vice president positions at a board of directors meeting Dec. 16.

Also announced was the promotion of two men to be vice presidents in charge of operating divisions. They are Walter B. Saunders for grain and M. D. McVay for vegetable oil.

Mr. Seed joined Cargill in 1932. He was a grain merchant and subsequently served in the animal feed, transportation and vegetable oil divisions in Cleveland, San Francisco and Minneapolis. He became assistant vice president in 1943 and in 1946 was named vice president in charge of the vegetable oil division and was elected a director. He has served as an officer of the Northwest Feed Manufacturers Assn. and as president of the National Flax Producers Assn.

Mr. Diercks joined Cargill in 1937 and worked in the firm's export department, and in 1939 became branch office manager in St. Louis. He took charge of the company's southern region in 1951. Two years later he became merchandising manager for the grain division in Minneapolis and was made vice president in charge of the grain division in 1954. He was named to the board of directors in 1959.

Fred M. Seed

H. R. Diercks

Mr. Saunders came to Cargill in 1946. He was a grain merchant in Chicago, assistant branch manager in Kansas City, manager in Baltimore and manager for the vegetable oil division in Chicago before becoming head of the firm's central region in 1954. In 1956 he was made assistant vice president and became merchandising manager for the grain division in Minneapolis.

Mr. McVay joined Cargill as a feed ingredient merchandiser in 1940. In 1946 he became administrative assistant for animal feeds and vegetable oil in Minneapolis. He was named assistant vice president in the oil division in 1947.

Buys Storage Building

YORK, PA.—D. E. Horn & Co., Inc., has purchased a 25,000 sq. ft. structure adjacent to its feed mill at Lincoln and West streets to be used for storing grains brought in by York area farmers to use in their feeds.

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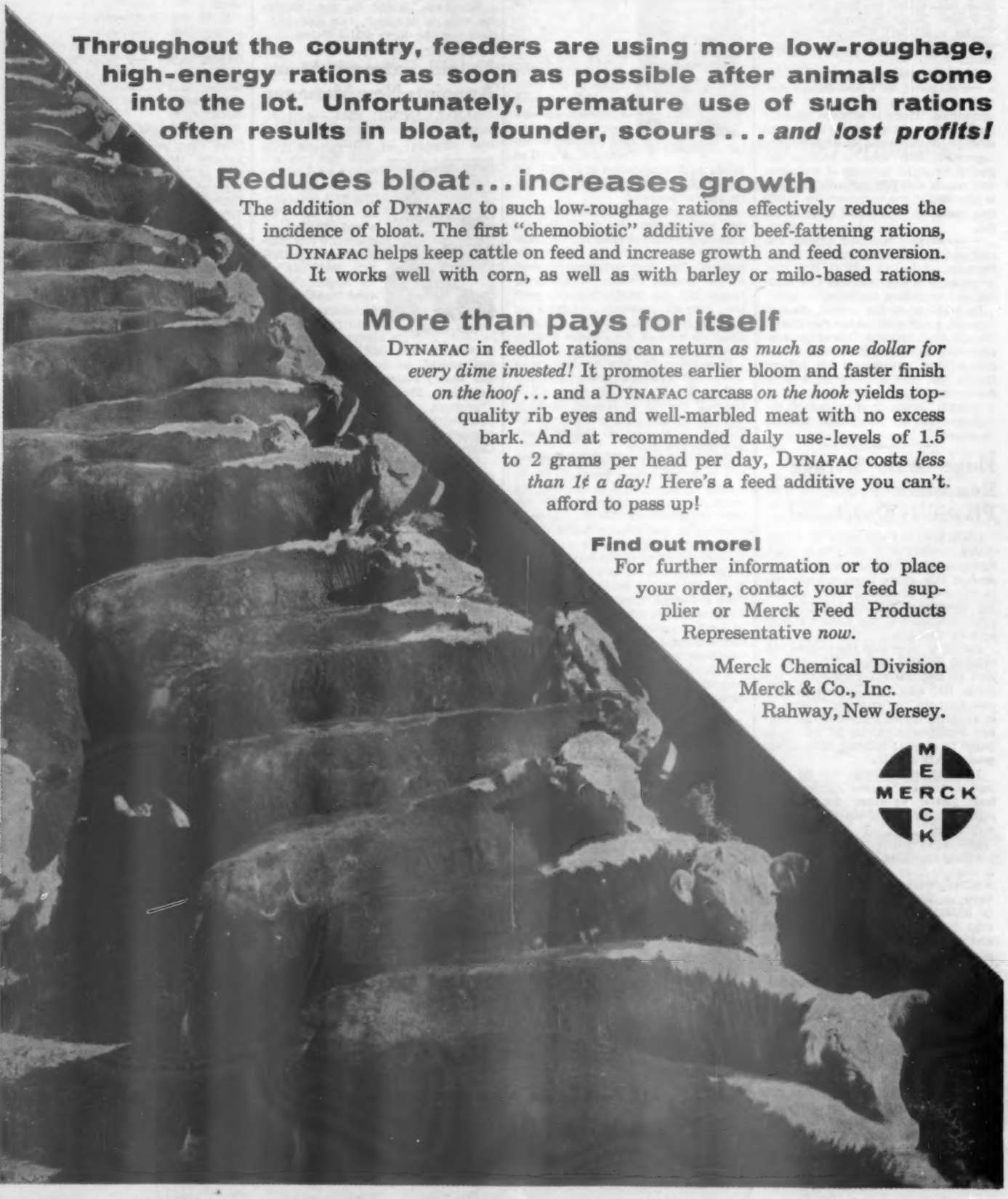
lets you use low-roughage rations ...*without* bloat!



Throughout the country, feeders are using more low-roughage, high-energy rations as soon as possible after animals come into the lot. Unfortunately, premature use of such rations often results in bloat, founder, scours . . . *and lost profits!*

Reduces bloat...increases growth

The addition of DYNAFAC to such low-roughage rations effectively reduces the incidence of bloat. The first "chemobiotic" additive for beef-fattening rations, DYNAFAC helps keep cattle on feed and increase growth and feed conversion. It works well with corn, as well as with barley or milo-based rations.

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MERCK

Columbian Feed Co. Opens Illinois Mill

GENESEO, ILL. — The new feed mill recently completed by Columbian Feed Co., started production here last month, Frank R. McDermand, president of the firm, announced.

The plant will serve the local area with a complete line of formula feeds and also will distribute the company's line of livestock supplements in Illinois and Iowa. Opening of the mill was preceded by a three day sales meeting at Geneseo, attended by 60 company salesmen from the midwestern area.

The plant has a capacity of approximately 100 tons per eight-hour day. Latest equipment includes a grain drier, oats huller, scalping equipment, a Prater 75-hp. hammermill and a 100-hp. multi-duty Wenger pellet mill with crumblizing and molasses equipment.

All plant production is guided from a central panel, with push-button control of grinding, mixing, and other operations. There is storage capacity for 50,000 bu. of grain and ingredient storage for 20,000 bu. In addition, the ingredient bins have a storage capacity for eight carloads of bulk protein meals and concentrates. Storage is provided in the basement for 12,000 gal. molasses and 4,000 gal. animal fat.

A warehouse building adjoins the mill and is now being doubled in size from its original 96 x 33 ft. It is provided with both truck and rail loading and unloading facilities.

In addition to its regular line of formula feeds sold under the Comet brand name, and the Columbian supplements, the mill also offers a custom mixing service and has several trucks for bulk delivery of feed to customers in its local trade area.

Lowell Creach is manager of the mill and M. E. Trowbridge is sales manager.

Huge Grain Storage Bag Made From Plastic Is Developed

CHICAGO — Field tests of a new system which, it is said, "may revolutionize grain storage and help to protect U.S. grain from radioactivity in the event of nuclear war," are being conducted at the Rice-Powell grain elevators in the Lake Calumet area of Chicago.

Daniel F. Rice said the system, developed by the Dunbar Kapple division of DK Manufacturing Co., Batavia, Ill., also "should help American farmers by enabling them to store grain for an investment in storage facilities of about 5¢ bu., compared to current building costs of approximately 30¢ bu."

He said this savings can be realized because the new method uses huge plastic "sausages" for flat storage, eliminating the need for costly structures.

Dunbar-Kapple's pneumatic grain handling machine, the Vac-U-Vator, is used to blow grain into the Koroseal vinyl storage sausages which have capacities ranging from 5,000 to 50,000 bu. When filled, air flow into the same machine is reversed, and enough air is removed from the grain to create a partial vacuum, reducing the life-fostering oxygen for insects, molds and other destructive elements. It is reported that the vinyl storage sausages are impervious to weather changes and attacks by rodents.

The bags, developed by B. F. Goodrich, can be stored underground or above. The 25,000 bu. sausage under test at the Rice-Powell elevators is 100 ft. in length and circumference and weighs 600 lb. When filled with air at a water pressure of 2 inches, the added air gives it a weight of 15,000 lb. This, it is said, provides

(Turn to GRAIN STORAGE, page 96)

Dr. Lew S. Mix

Dr. John Snyder

Beacon Milling Co. Appointments Told

CAYUGA, N.Y.—Dr. Lew S. Mix will become vice president of the Beacon Milling Co. division of Spencer Kellogg & Sons, Inc., Jan. 1, 1961. Presently director of dairy and livestock research for Beacon, Dr. Mix will assume general administrative duties in the company. He will work especially on new geographic areas for company development, as well as product diversification and will assist S. W. Tyler, company president, on special projects.

Dr. Gilbert Porter

At the same date, Dr. John M. Snyder will assume the newly created post of director of research for Beacon. In this capacity, he will coordinate all feed and nutrition research of the Beacon division, and will be responsible for integrating this with the over-all research program of Spencer Kellogg & Sons. He will continue as head of the Beacon poultry research department.

Succeeding Dr. Mix as director of dairy and livestock research is Dr. Gilbert H. Porter. His responsibilities will include all Beacon research, formulation and sales promotional assistance in relation to Beacon dairy and livestock feeds.

Dr. Mix joined Beacon in 1952. He is a dairy husbandry graduate of the college of agriculture at Cornell. His graduate studies were at the University of Minnesota. He has been a member of the Beacon board of directors since 1956 and is on the finance committee of the board.

Dr. Snyder, a native of Illinois, has been with Beacon since 1954, and has been a Beacon director since Jan. 1, 1959, when he also became director of poultry research for the company. He received both undergraduate and graduate training at the University of Illinois. In earning his doctorate, he majored in animal science and specialized in poultry nutrition.

Dr. Porter came to Beacon in 1956. He is a native of Massachusetts. He graduated from the University of Massachusetts with a major in dairy production; then took graduate work at the University of Connecticut and at Pennsylvania State University. His work with Beacon has been concerned with dairy and livestock research.

C. U. Kelly, Founder Of Iowa Company, Dies

IOWA CITY, IOWA — Funeral services were held here Dec. 10 for C. Urban (Jake) Kelly, 61, president of the board of Protein Blenders, Inc.

Mr. Kelly, one of the founders of the feed company and chairman of the board of Maplecrest Turkey Farms, Wellman, Iowa, died Dec. 8 following a heart attack. Maplecrest is a subsidiary of Protein Blenders.

His son, C. U. Kelly, Jr., now is president of the feed firm.

A short time before his death, Mr. Kelly had returned from a tour of Europe studying agricultural conditions at the request of a Senate committee on agriculture.

He entered the feed industry in 1926, while still farming.

Survivors, beside his son, include his wife, a daughter, two grandchildren, two brothers and a sister.

Nulaid Farmers Assn. Appoints New Manager

SAN LEANDRO, CAL.—Appointment of Norman F. McIntyre as general manager of Nulaid Farmers Assn. has been announced by the board of directors. The firm is reported to be the world's largest cooperative egg marketing organization and one of the largest cooperative feed manufacturers in the country. Mr. McIntyre, who has been with the association 14 years, has served as corporate secretary and supply manager of the feed department. He will succeed L. N. Thompson, who resigned after 32 years with the association, which was formerly the Poultry Producers of Central California.

N. F. McIntyre

Mr. Thompson indicated that his resignation "is to permit him to devote his time to industry interests." However, no information on his specific plans has been announced.

California's Egg Industry Prepares For Promotion Event

LOS ANGELES—All elements of California's big egg industry—the nation's largest in 1959—are readying themselves for a month-long intensive campaign in January to promote the "Golden Goodness of California Fresh Eggs," according to the California Egg Council.

The campaign to call the consumers' attention to the nutritional value of eggs is being spearheaded by the state's egg marketing organizations, including the council, in cooperation with Hess & Clark, feed medications

(Turn to EGG PROMOTION, page 96)

Official Reports Agree Much of New Corn Is In High-Moisture State

Recent "official' reports are verifying what midwestern feed manufacturers and dealers have been saying for several weeks about this year's new corn crop: Much of it is in the high-moisture category despite good drying weather in some areas of the Corn Belt.

This situation has been a problem for feed men—perhaps a bigger one than a year ago. Poor-quality, high-moisture corn is cheap. It is fed freely and used more carelessly than higher priced, drier corn. Thus, the new season of increased feeding of formula feeds—now in its initial stages—has been postponed somewhat.

L. H. Simerl, University of Illinois agricultural economist, says late fields of corn in central and northern Illinois didn't dry properly. "There were few good drying days in September and October," he said. "In some areas there were excessive rains."

In Iowa, however, according to the Iowa Crop and Livestock Reporting Service, weather during the latter part of September and during October and November was "ideal for maturing and drying the unusually late 1960 corn crop." But, even though the prolonged period of frost-free weather permitted most of the Iowa crop to mature without frost damage, moisture content continued quite high during much of October due to the late dates of maturity.

It was reported from Iowa recently that moisture content of the current crop still is the third highest in the past 10 years. Only the crops of 1951 and 1957 contained more moisture.

Moisture contents ranging from 14½% to more than 32% were reported in Illinois. In some extreme cases, according to Mr. Simerl, corn brought less than 40¢ bu. after discounts for moisture.

"Much of the 1960 crop is too wet to qualify for price support loans," Mr. Simerl said. "And Commodity Credit Corp. has a record supply of corn, some of which is not of good keeping quality. This suggests that CCC may have to sell substantial amounts of corn in the next several months."

Iowa Firm Hires Elliott Roosevelt

SHELDON, IOWA — Officials of Northern Biochemical Corp., Sheldon, announce that Elliott Roosevelt, son of the late President Franklin D. Roosevelt, will be employed as the firm's financial adviser.

Mr. Roosevelt will also serve in an advisory capacity in the firm's franchise division. He'll maintain headquarters here and in Denver, Colo., where he has been living.

PLASTIC STORAGE SYSTEM—The photo at left shows the big plastic sausage-like grain storage unit undergoing tests at the Rice-Powell elevators near Chicago. Dunbar Kapple's Vac-U-Vator blows 25,000 bu. of corn into the storage bag from 12 freight cars on rail siding. At right, the pneumatic grain handling machine is disconnected. The bag has been deflated by reversing air flow in the machine. This creates a partial vacuum, eliminating enough oxygen from the grain to reduce the life-fostering element for insects, molds and other destructive things.

Range Outlook Improved in West

FARGO, N.D.—Above average precipitation and seasonally mild weather during November significantly improved the outlook for winter range feed in the 17 western range states, according to a report from the North Dakota Crop and Livestock Reporting Service in Fargo.

This moisture softened cured forage and replenished stock water supplies over these states. Greatest benefits from the moisture came in California where new feed has started growth and sharply improved the outlook for winter grazing.

Dry, mild weather on the Central and Southern Plains has favored full utilization of what is probably the best winter wheat pastures in history, according to the report.

Practically all winter ranges and pastures were open for grazing during November. This, plus full utilization of meadow fields and crop residue, has conserved supplies of harvested forage and has reduced the danger of feed shortages in the problem areas of the Northern Plains and west of the Continental Divide.

Cattle generally have made good fall gains and show only a light seasonal shrink during this year's transition from green to dry feed. The impact of the sharp demand for cattle to move to wheat pastures, on the top of the normal replacement needs, created a strong and rising feeder cattle market during the month.

Trading was relatively heavy and by Dec. 1, all but 20% of the expected marketings of range cattle and calves had been sold or contracted out of first hands. This compares with 20% still to be traded on Dec. 1 of last year and 15% on the same date in 1958.

The widespread moisture has improved grazing on much of the winter sheep range, too. In addition, new growth in the South and movement of early lambing ewe bands to irrigated pastures have all contributed to an unusual improvement in sheep condition during November. Reports from producers indicate that only 15% of the intended fall marketings of sheep and lambs had not been traded by Dec. 1. The percentage still to be sold is the same as last year, and compares with only 10% remaining in first hands on Dec. 1, 1958.

GTA Expansion Plans Outlined; Savings Off Sharply from Year Ago

ST. PAUL—The general manager of Farmers Union Grain Terminal Assn. (GTA) said here this week at the organization's three-day convention that the 1960's "are not a time for farm cooperatives to retrench or be timid. It is time to move out boldly, as GTA has done to maintain its position as the dominant voice in the grain market," said M. W. Thatcher.

The St. Paul cooperative handles approximately 125 million bushels of northwest grain each year and is involved in the manufacture, distribution and processing of feeds, seeds and farm chemicals.

Mr. Thatcher outlined for approximately 3,500 delegates and stockholders from the Dakotas, Montana and Minnesota GTA's program of expansion. Also, he reported that the co-op's savings of $3,070,657 for the 1959-60 fiscal year were down nearly a million dollars from the previous year ($4,052,722). He said the decline in net savings reflected the narrowing margins on which grain handlers have been operating.

Notes Reasons

Mr. Thatcher said some of the reasons for the narrowed margins in the

(Turn to GTA, page 96)

VETERINARY-NUTRITION CONFERENCE — Some of the speakers and other program participants at the Midwest Veterinary-Nutrition Conference in Kansas City are pictured here. In the first photo, left to right, are Dr. LaVerne C. Harold, Food and Drug Administration, Washington; Dr. J. T. Tumlin, McMillen Feed Mills, Decatur, Ind.; Dr. Mark L. Morris, Denver, president-elect of the American Veterinary Medical Assn.; Lloyd Larson, Midwest Feed Manufacturers Assn., and Dr. James R. Farrell, Boonville, Mo. In the second photo are Dr. E. R. Peo, Jr., University of Nebraska; Dr. James Bailey, Walnut Grove Products Co., Atlantic, Iowa, chairman of the Midwest Veterinary-Nutrition Council, and Dr. A. L. Neumann, University of Illinois.

Quaker Oats Names Division Manager

CHICAGO—Appointment of R. E. Hilgenfeld as manager of The Quaker Oats Co. southwest feed division effective Jan. 1 has been announced by I. S. Riggs, vice president. He succeeds Henry W. Crutchfield, who recently was promoted to general sales manager for feed products. (Feedstuffs, Nov. 26.)

Mr. Hilgenfeld's headquarters will be at Sherman, Texas. He joined The Quaker Oats Co. as a Ful-O-Pep district representative at Wichita Falls, Texas, in 1953. In January, 1957, he was transferred to Nacogdoches, Texas, and in July of this year was named district manager.

W. J. Rudy of Merck Moves to Minneapolis

MINNEAPOLIS—Walter J. Rudy, Merck feed product sales representative, has transferred from Dallas, Texas, to a new region assignment for Merck Chemical Division in Minneapolis.

W. J. Rudy

Mr. Rudy, who joined Merck in June, 1950, will service Merck feed accounts in Minnesota, North Dakota, South Dakota and Wisconsin, reporting to David G. Stephen, northwest region sales manager.

A native of Pennsylvania, he majored in agricultural biochemistry at Pennsylvania State University, receiving a bachelor of science degree in 1930. Later he took advanced study in nutrition.

Following graduation, Mr. Rudy served in poultry nutrition research for the U.S. Department of Agriculture at the research center in Beltsville, Md. Later he served with Allied Mills, Inc., in livestock and poultry nutritional research at Peoria and Libertyville, Ill. Mr. Rudy first worked out of the Merck Chicago office, later transferring to the south central region with residence in Dallas.

WAREHOUSE DESTROYED

GAINESVILLE, GA.—A warehouse of the Piedmont Poultry Co. at the Gainesville airport was partially destroyed by fire this week. No damage estimate was immediately available, but a company official said the building, 80% covered by insurance, was loaded with corrugated boxes containing peanut hulls.

Feed Men Told—

'Will Be Called Upon to Formulate Rations for Disease-Free Swine'

KANSAS CITY—Feed manufacturers will be called upon to formulate rations for "disease-free" pigs—a development which is said to be "not just a passing fancy," but is moving very rapidly.

This advice to feed men was passed on by Dr. Ernest R. Peo, Jr., at the Midwest Veterinary-Nutrition Conference, held here Dec. 12-13 under the sponsorship of the Midwest Feed Manufacturers Assn. and state veterinary medical associations.

In the specific-pathogen-free (SPF) swine program developed at Nebraska, pigs are removed from the sow shortly before normal birth time by surgical means and then reared in isolation to prevent the transfer of certain infectious diseases from dam to offspring.

Dr. Peo described the development of the program and then went on to outline a suggested feeding program —from birth of the initial primary stock to the time when primary stock reach breeding age or weight, when the producer may continue his present feeding program or plan a new one.

Up to the present, the program started by the Nebraska experiment station has been "very successful," Dr. Peo said. The station herd evaluation of the SPF program is now in its fifth year, and the herd is still free of atrophic rhinitis and virus pig pneumonia. The phase of the program in which farm herds are repopulated with SPF swine also is being continued and expanded.

Production of SPF pigs in the swine industry is developing very rapidly, the Nebraska scientist said, and this will demand the maximum in cooperation among veterinarians, feed manufacturers and swine producers.

After the pigs are taken surgically, they go into an isolation unit for one week, then into a brooder for three weeks and then to the farm where they mature. Only one veterinarian per 1 million hogs in the U.S. will be licensed to produce the basic SPF stock. After the initial stock mature, normal birth is resumed, and restocking of other farms may also proceed.

The establishment of laboratories for the procurement and rearing of SPF swine will be the primary responsibility of "veterinary specialists," but all veterinarians are advised to be familiar with the program in order to help producers in other phases of the program.

Feeding Program

Discussing the feeding program, Dr. Peo said: "The veterinary specialists will require special rations for SPF pigs being reared in isolation. The swine producer will demand a sound feeding program for the pigs when they are delivered to the farm at about four weeks of age.

"Experience in Nebraska clearly indicates that, except for the primary stock, the nutritional requirements of

(Turn to SWINE RATIONS, page 97)

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POULTRY

(Continued from page 1)

the current laying year.

● "Turkey production in 1961 may be as much as 10% above 1960. With these supplies, turkey prices during September-December, 1961 may average 3-4¢ below a year earlier.

● "Broiler production is expected to increase again in 1961. January-March U.S. farm prices may average 16-17¢. Summer prices are expected to average 15¢ compared with the 17¢+ for the same period of 1960."

The Poultry Survey Committee is comprised of four college poultry economists. They are Dr. Ralph L. Baker, Pennsylvania State University; Dr. Richard L. Kohls, Purdue University; Dr. Henry E. Larzelere, Michigan State University, and Dr. Anthony Stemberger, North Carolina State College. Serving in an ex-officio capacity in the work of the committee are several additional committee economists from industry and the U.S. Department of Agriculture.

The committee's work is co-sponsored by American Feed Manufacturers Assn., National Turkey Federation, and Poultry and Egg National Board.

The complete report is as follows:

BROILERS—The stage is set for another broiler production increase in 1961. Favorable broiler returns during the past year have enabled the industry to improve its capital position, decreasing the need for outside credit for expansion. Ample credit for 1961 expansion is expected to be available. This, coupled with the general optimism which exists in the industry, substantiates the forecast of expansion during 1961.

The number of pullet chicks sold by primary breeders has increased almost 30% in the past six months. Therefore, supplies of hatching eggs are expected to be substantially increased in the last three quarters of 1961. This will mean a decrease in the price of chicks—reducing broiler production costs by perhaps 1¢ or more per pound. Feed prices will also average lower than in 1960.

January-March U.S. farm prices will average 16-17¢, lower than 1960's average of about 17.5¢. Summer broiler prices are expected to average about 15¢ compared with 17¢+ for the same period of 1960 and about 16¢ in 1959.

Recent placements and egg settings point to marketings in the January-March quarter about 10% higher than the same quarter of 1960. In addition to the expected increase in supplies over year earlier levels, broilers will be subjected to more competitive pressures as 1961 progresses. Increasing supplies of pork, turkey and beef will be marketed during the year.

EGGS—Recent egg prices and those expected during the first quarter of 1961 will stimulate an increased hatch of about 10-12% during the first half of next year. Most of the increased hatch will come during January-April. If the expected increase in hatch materializes, returns to producers will average significantly lower during the laying year beginning in October, 1961. Under these conditions, egg prices in October-December, 1961 would be 10¢ or more below those of a year earlier.

The laying flock Jan. 1, 1961, is likely to be about 4% under a year earlier, but by midyear will return to 1960 levels. However, during the second quarter of 1961 market egg supplies are expected to rise above a year earlier because of a slight increase in the rate of lay.

U.S. average farm egg prices during January-March, 1961 are expected to be around 35¢, 5¢ above the same period of 1960. April-June prices are expected to average 31¢ or about 2¢ below a year earlier. Third quarter prices are expected to be 33¢ a dozen —also about 2¢ under those of July-September, 1960.

TURKEYS—A substantial increase in turkey production is expected in 1961—perhaps as much as 10% above 1960. The percentage increase in the bronze and two-way heavy whites will be greater than in the light breeds. This will probably result in September-December, 1961 U.S. average farm prices 3-4¢ less than the approximate 26¢ year earlier average.

Several factors favor the expansion of production. The recent season was profitable. Producers have indicated intentions to hold substantially increased numbers of breeder hens. This points to ample supplies of eggs and poults at lower prices. Expansion credit is available. Feed supplies will be ample and lower in price.

Demand during the 1961 major marketing season is not expected to be strong enough to absorb the anticipated increase in supplies without a price reduction. Competing supplies of beef, pork and chicken will be more plentiful and lower in price. Consumer incomes will be little, if any, higher than in late 1960.

Turkey prices during the first six months of 1961 will average two to three cents below the 26¢ level of the comparable 1960 period. These 1961 prices would be about the same as in 1959. Storage carryover into 1961 will be only slightly larger than the 149 million pounds of January, 1960. However, new crop marketings during the first part of 1961 will be substantially larger than the year previous. During the last six months of 1960, poult hatchings were two million head above a year earlier.

Bemis Announces Sales Post Changes

ST. LOUIS—Appointments of Carl F. Zimmer as sales manager of the Kansas City sales division and George E. Dean to the newly-created position of sales executive-milling products, were announced by T. H. Ashton, director of central operations, Bemis Bro. Bag Company.

"Because of the concentration of milling industry activities in the Kansas City sales territory requiring specialized and complete services," Mr. Ashton said, "Bemis made the change as an important part of its expanded service plan to its flour and feed milling customers."

Mr. Zimmer, who joined Bemis in 1947, served for three years as the St. Louis sales division's representative for eastern Iowa. In 1950 he was transferred to the sales division's office in St. Louis. He will transfer to Kansas City to assume his duties on Jan. 1.

Mr. Dean joined Bemis at the Kansas City office in 1943 and was made sales manager there in 1953. For many years before joining Bemis, he was associated with his family in the Blue Rapids (Kansas) Milling Co.

FINANCING

(Continued from page 1)

of equity financing which will meet the significant and pressing needs of agriculture.

"Specification lending to me encompasses the need for a credit package which will cover the entire farming operation. If this were done, I think we can discontinue the conceptual framework of short term loans, intermediate loans and long term loans."

Bankers attending the conference were told that specification lending requires that the farm be considered a single unit of operation. "The farm requires an open line of credit designed to meet the specifications of short, intermediate and long term capital requirements, with the farm real estate as the basic collateral supporting the loan," Dr. Wood said.

"An expanded use of open-end mortgages would come closer to giving the farm operator the open line of credit which he needs to finance the entire farming operation. There is a strong possibility that such a program of specification lending would reduce the cost of credit, both to farmers and to our agricultural credit system."

Number One Problem

The rapidly growing need by farmers and livestock producers for larger lines of credit to meet higher production expenses and the costs of mechanizing and enlarging farm and ranch units was shown to be the number one problem for country banks in discussions at seven simultaneous audience participation "bull sessions" during the conference held in the Denver Hilton Hotel.

Frequent references were made to livestock production, but little was said about poultry, specifically.

Participants in the "bull session" groups agreed that during the next 10 years banks serving agriculture will not only have to increase their deposits and capital to provide an increased capacity for lending, but correspondent bank relationships and tie-ins with insurance companies will be necessary to insure adequate financing.

Beyond the changes in policies and procedures in lending, participating bankers from all sections of the U.S. stressed the importance of banks working with farm and ranch customers to encourage better financial management and record keeping.

Developments Reviewed

Dr. Wood reviewed developments of the past decade which "point to the desirability of a hard look at credit policies."

His review included the following major trends involving agricultural credit and producers:

"1. The commercial production of food and fiber in this country is being concentrated into fewer and fewer farms. Today, 56% of our farms produce only 9% of our farm products. In other words, the bulk of our food and fiber is produced by a million or so commercial farmers.

"One farm is lost about every five minutes due to the changing nature of agriculture and the revolutionary forces which are at work. It is only a question of time—and this may occur sometime late in the 1960's—when perhaps less than half a million farms will produce the bulk of the food and fiber that you and I consume.

"2. The investment per farm in this country is rising and will continue to increase . . .

"3. Total farm debt has increased rapidly — approximately $24 billion from 1947 to 1949 . . .

"4. Farm earnings have been decreasing. Although income per person living on farms has remained rather steady in recent years, it would not have held this position had it not been for the increase in income from off-farm sources.

"We have in agriculture today a large group of farmers who are willing to work for practically nothing. As long as we have this situation—agriculture probably is the most underpaid of all our national economic groups—I do not see any significant curtailment of the total output for agriculture . . .

Collective Bargaining

"5. We will see a rise of collective bargaining in agriculture. In the 1960's we should anticipate legislation at the state and national levels which will provide modified programs of collective bargaining for agriculture similar to what we have today for labor. Many, many people are confused and concerned about this development.

"During the 1950's the big thing we talked about was integration and contracting in agriculture — getting the specification production from farm to market more directly. This will continue to evolve in the 1960's.

"The major theme of the 1960's, I think, will be how to work out a collective bargaining approach for agriculture. How are we going to do it? What will our strategy be?"

Dr. Wood said it is likely that a bill will be introduced in the 1961 Oregon legislature to provide for a collective bargaining program similar to the national legislation setting up the National Labor Relations program. "Processors who contract with farmers must observe certain fair standards of conduct in the negotiation and carrying out of such contracts," he said.

Dr. Wood believes many producers will find it impossible to obtain the kinds and amounts of credit that will be needed for survival. "This is the cold war of competition at work," he said.

"It is the earning capacity of the farm and the farmer that is basic in determining the debt-carrying capacity of any given farm operation. I feel that we will meet the agricultural needs of the 1960's if we recognize that the debt-carrying capacity of our better farms and our commercial operators has increased in the last decade."

"Realistic Maturities"

Raymond J. Doll, agricultural economist, Federal Reserve Bank of Kansas City, observed: "One of the real problems confronting country bankers is to write farm loans with realistic maturities. To do so requires considerable flexibility and an intimate knowledge of modern-day techniques.

"The great challenge facing rural bankers in the 1960's will be to provide a maximum amount of the increased credit needs of farmers on a basis that will be profitable to both the farmer and the bank.

"Rural banks generally have done an excellent job of financing agriculture in the past. Currently, they are extending a record-high of $6½ billion of credit to American farmers.

"The rural banks that adapt their methods and procedures to the conditions that are emerging in agriculture should continue to find the farm loan field to be a profitable source of investment of bank funds in the 1960's."

Emerging as the dominant type of farm business is the commercial family farm with total investment ranging to $50,000 and above, according to Roger L. Cunningham, vice president, First Continental National Bank and Trust Co., Lincoln, Neb.

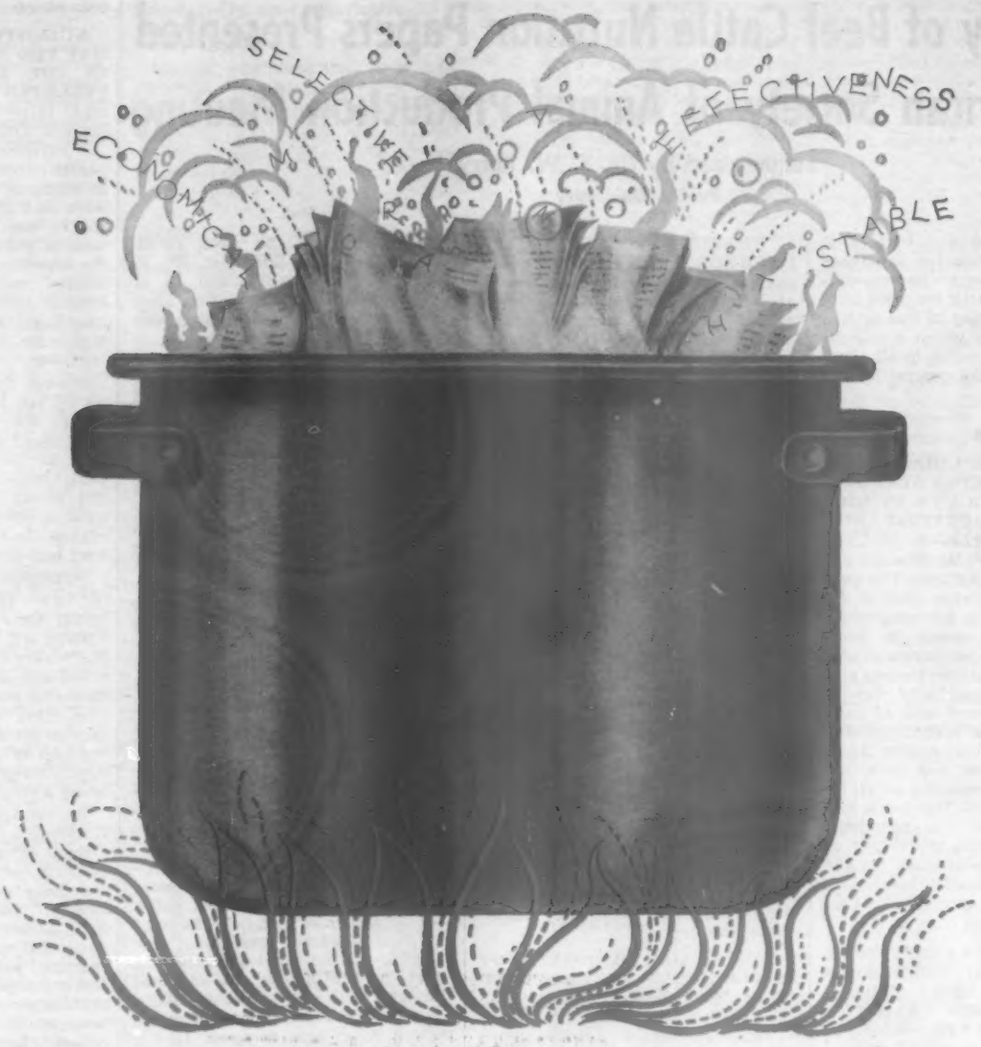
He said the role of correspondent banking will depend on "our understanding of the nature of expanding capital and credit requirements in agriculture, our confidence in the agriculture of the future as a sound and profitable field for loans and the extent to which we effectively use our correspondent banking relationships."

Livestock Financing

Members of a panel concurred that price stability in livestock production and marketing achieved by scientific feeding and changes in merchandising as a result of consumer demand for a uniform product have increased the need for a reliable supply of credit to support year-around operations and have made the field an attractive one for bank lending.

The panelists agreed that supermarket merchandising of meat and cattle products which demands uniform grades and higher qualities has contributed to the stability and liquidity of the livestock industry.

Summarizing the panel discussion, the moderator, Leonard N. Burch, president, First National Bank of Greeley, Colo., said: "Producers of livestock, by and large, are in a rather strong financial position and can expect adequate financing in the future. When compared with our inflated dollar and the spendable income of the consumer, present prices for various kinds of livestock seem to be well in line with what they should be for livestock operators to operate profitably."



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Summary of Beef Cattle Nutrition Papers Presented At American Society of Animal Production Meeting

Summarized by Dr. T. W. Perry
Purdue University

Papers concerned with beef cattle numbered more than for any other category. Twenty-nine papers concerned with beef cattle nutrition were selected for reviewing in this article. One of the subjects which is attracting widespread attention in all classes of livestock is the general field of feed additives.

Feed Additives

EFFECTS OF CHLORTETRACYCLINE AND TETRA ALKYLAMMONIUM STEARATE IN SHIPPING AND ADAPTATION STUDIES WITH CATTLE—R. M. Luther, L. B. Embry, F. W. Whetzal and J. K. Lewis, South Dakota: The feeding of aureomycin at a level of 250 mg. per head, daily, to cattle which had suffered the stress of being shipped resulted in an increased rate of gain. In one trial, the feeding of 4 gm. Dynafac per head daily also resulted in an increased rate of gain. Probably one of the best things that has come along to help control losses from shipping fever has been the group of chemotherapeutics which include the antibiotics. The death loss from shipping fever has now been controlled down from an average of 3-4% to none, in most cases. This is just another testimonial to the increasing stature of antibiotics in beef cattle nutrition.

DIGESTIBLE ENERGY OF A STEER RATION SUPPLEMENTED WITH TRANQUILIZERS AND DIETHYLSTILBESTROL SINGLY AND IN COMBINATIONS—M. M. McCartor and B. A. Koch, Kansas: This paper presents data which indicates both trifluomeprazine and hydroxyzine when fed alone or in combination with diethylstilbestrol, had no significant effect on the digestion coefficient of energy of rations fed to beef cattle. Trifluomeprazine was fed at a level of 5.0 mg. per animal, daily, and hydroxyzine was fed at a level of 2.5 mg. per animal, daily, in the two digestion trials conducted.

VALUE OF ADDED ENZYME PREPARATIONS IN BEEF CATTLE RATIONS—J. K. Ward, D. Richardson and W. S. Tsien, Kansas: Early gains in a feeding trial with more purified sources of either amylolytic or proteolytic enzymes indicated a terrific response in growth rate from enzyme supplementation of beef cattle rations. However, for the entire 215 day trial, the over-all daily gain was not statistically different for the control (1.69 lb. per day); 0.567 gm. amylolytic enzyme (1.52 lb.); 0.567 gm. amylolytic enzyme plus 1.362 gm. proteolytic enzyme (1.60 lb.). This trial was conducted with 30 Hereford heifers which averaged 466 lb. at the start. They were fed a fattening ration of ground corn, sorghum silage, alfalfa hay, soybean oil meal and minerals. Two fistulated Shorthorn steers were used to study any effect on fatty acid formation in the rumen as a result of the enzyme treatments. There was no significant effect on level of acetic, propionic or butyric acids in the rumen fluid as a result of the treatments.

LOW VS. HIGH MOISTURE SHELLED CORN WITH AND WITHOUT ENZYMES AND STILBESTROL FOR FATTENING STEERS—T. W. Perry, D. D. Cope and W. M. Beeson, Purdue: No effect on increase in growth rate was obtained by feeding any one of the three enzymes tested, when they were fed at a level of 0.0075 lb. per head daily to fattening beef steers. Furthermore, there was no interaction with high or low moisture corn or with oral diethylstilbestrol. Eight lots of 10 beef steers each were fed a fattening ration of a full feed of shelled corn, 2 lb. supplement A, limited corn silage and free choice minerals. Four lots were fed regular shelled corn (19.5% water) and four lots were fed high moisture ensiled shelled corn (29.7% water). Within each of the two levels of corn moisture tested a control lot was fed no supplemental enzyme preparation and treated lots were fed 0.0075 lb. per day of Agrozyme, Diazyme or HT550-F. In a subsequent phase, oral diethylstilbestrol and HT550-F were fed alone and in combination.

EDITOR'S NOTE: The accompanying article contains summaries of selected beef cattle nutrition papers presented at the annual meeting of the American Society of Animal Production Nov. 24-26 in Chicago. The reports were summarized by Dr. T. W. Perry, professor of animal science, Purdue University, Lafayette, Ind. Summaries of the sheep nutrition papers will appear in next week's Feedstuffs. Swine nutrition summaries appeared in Feedstuffs Dec. 10.

COMPARISON OF DIFFERENT SUPPLEMENTAL ENZYMES WITH AND WITHOUT DIETHYLSTILBESTROL FOR FATTENING STEERS—LeRoy F. Nelson and Damon V. Catron, Walnut Grove Products Co., Inc.: Eight enzyme experiments involving 582 steers showed an improvement in gain as the result of feeding crude enzyme preparations in combination with diethylstilbestrol. Only one enzyme preparation caused increased rate of gain when diethylstilbestrol was not included. The synergism of DES plus the enzyme (0.29 lb. per day) was nearly equal to that of DES alone (0.33 lb. per day). The enzyme preparations tested were Agrozyme, Zymo-Pabst, Rhozyme and Takamine HT550-F.

The enzyme picture for beef cattle is not very clear. Sometimes there are responses to enzyme feeding and sometimes there are not responses. Sometimes it appears the response to enzymes must be triggered by DES or dry corn, and then it seems these are without effect on the enzyme response.

PROLONGED CONTROL OF PASTURE BLOAT BY ORAL ADMINISTRATION OF ANTIBIOTICS—H. H. Van Horn, Jr., P. H. Hartman, N. L. Jacobson, A. D. McGilliard, P. R. Shellenberger and S. M. Kassir, Iowa: An antibiotic offers good control against bloat—but only for a short time. Apparently the animal adjusts to any one antibiotic within a few days and then this particular antibiotic is without benefit. This research indicated a benefit from rotating six antibiotics every week for six weeks. However, when the cycle of antibiotics was repeated, control of bloat was not adequate in some cases. Theoretically, it would appear that if 12 different antibiotics were available, they could be changed every week and give protection for a dozen weeks. However, it appears it is not so good if any of the antibiotics is used a second period. The relationship of antibiotics to bloat is indeed a strange one.

THE VALUE OF A STEROIDAL SAPOGENIN IN THE RATIONS OF FATTENING LAMBS AND BEEF CATTLE—W. C. Sherman, W. H. Hale, W. M. Reynolds and H. G. Luther, Chas. Pfizer & Co., Inc.: Smilagenin is a steroidal sapogenin of plant origin. It is not known to have estrogenic activity. This sapogenin improved the rate of gain of lambs when it was fed at a level of from 2 to 24 gm. per ton of ration, with the most effective level being 8 gm. per ton of ration. An increase in rate of gain of lambs was 24% and improvement in efficiency of feed conversion was 19% when their ration contained 8 gm. per ton. When 20 mg. of smilagenin was fed per head daily to steers, an increase in gain of 0.17 lb. per day was obtained. This compares to the stimulation of 0.31 lb. per day obtained by feeding diethylstilbestrol.

The dream of many beef cattle researchers is to identify a compound which has an anabolic effect (growth stimulating) on beef cattle, but which has no estrogenic effect (increased teat length, etc.).

EFFECT OF COBALT BULLETS IN BEEF CATTLE RATIONS—D. Richardson, W. S. Tsien, B. A. Koch, J. K. Ward, E. F. Smith and F. W. Baren, Kansas: In one of two experiments, in the placing of a 20 gram bullet, containing 90% cobalt oxide, into the rumen of beef heifers caused a highly significant increase in rate of gain. In another experiment, no effect on rate of gain was obtained through the use of the cobalt bullets. Cattle with no alfalfa in their ration showed a greater response to the cobalt bullets than did cattle whose ration contained alfalfa.

Cobalt is a very critical mineral element for ruminants. The addition of cobalt to ruminant diets which are deficient in cobalt can be expected to result in dramatic responses. However, alfalfa is a pretty good source of many of the trace mineral elements. Probably many beef cattle rations are naturally deficient in cobalt, whereas others are not.

Pelleting

Beef cattle nutrition research is still quite interested in the aspects of pelleting of ration. About the only way that the pelleting of predominantly concentrate rations can be justified is on the basis of better adaptation to automation and possibly a slightly more efficient utilization of feed. On the other hand, there are some distinct nutritional advantages to pelleting predominantly roughage rations. However, the big question is, "Can you justify the cost of pelleting roughages?" Under present economic conditions of cheap corn and high machinery costs, it seems doubtful that the pelleting of roughages is competitive.

EFFECT OF PHYSICAL FORM OF THE RATION ON STEER PERFORMANCE AND CERTAIN RUMEN PHENOMENA—A. E. Cullison, B. A. Campbell and R. W. Walker, Georgia: In a fattening trial, no benefit was obtained by pelleting the ration. One group of steer calves received a full feed of concentrates plus loose long hay in another bunk; a second group received the same constituents, ground and mixed together; and a third group had their complete mixed ration pelleted. Actually, the cattle fed their fattening ration in the pelleted form gained more slowly. Significantly lower rumen pH levels were found among those steers fed pellets only. Furthermore, an abnormal rumen wall was found in the case of steers fed the pelleted ration.

NUTRITIVE VALUE OF MIXED HAY FED AS THE SOLE RATION IN THE LONG, GROUND AND PELLETED FORMS—E. W. Klosterman, Gary E. Ricketts and R. R. Johnson, Ohio: Another trial in which the nutritional value of a predominantly roughage ration was apparently improved by the pelleting process whereas a predominantly concentrate ration was not improved being fed with a pelleted roughage. Actually, the digestion coefficients for organic matter, cellulose, crude fiber and calories were significantly higher for long hay than for chopped hay, and higher for chopped hay than for pelleted hay.

During the first part of the trial an all roughage ration was self-fed. Steers fed pelleted hay made the most rapid gains and required least feed. In the second part, the steers were self-fed a mixture of 90% ground ear corn and 10% soybean oil meal, in addition to the respective hay rations. In this phase, steers fed the long hay made the most rapid gains.

EFFECT OF PELLETING PER SE ON THE UTILIZATION OF MILO AND HIGH ROUGHAGE RATIONS BY STEER CALVES—J. E. McCroskey, L. S. Pope, D. R. Stephens and George Waller, Oklahoma: The Oklahoma workers confirm that there is no nutritional advantage to pelleting a concentrate ration for beef cattle, but that there is an apparent nutritional advantage to pelleting a roughage ration.

In one trial, milo was full-fed to fattening steers in one of three forms—finely ground, finely ground and pelleted, and reground pellets. Steers fed finely ground milo gained more rapidly, consumed more feed and hung higher grading carcasses than steers fed pelleted milo or those fed reground pellets. It is not clear why the reground pellets did not give a performance similar to that which was ground but which had not been pelleted. In a second trial the ration contained 80% roughage of equal parts chopped alfalfa hay and cottonseed hulls. In this trial, rate of gain, feed intake and feed efficiency were greatest on the pelleted rations. Gains and feed efficiency of steers receiving reground pellets were greater than those on the loose ration.

Protein

Much interest has been renewed in the matter of nitrogen relationship in beef cattle rations. The whole subject field of urea, for instance, has been investigated for many years. Yet there are many unexplored angles on the subject. Some day there will be sufficient information that the main supplemental source of nitrogen will be urea nitrogen. Of course there will be needed other factors to permit the rumen bacteria to make maximum utilization of urea nitrogen. It is these accessory factors necessary for efficient urea usage that have not all been identified. In fact, there may be quite some time before all the "accessories" are identified.

Other phases of protein interest for beef cattle are concerned with protein - diethylstilbestrol interrelationships, sources of natural proteins and others.

VALUE OF SUPPLEMENTAL LYSINE AND METHIONINE ON HIGH UREA FATTENING RATIONS FOR BEEF STEERS—W. H. Gossett, T. W. Perry, M. T. Mohler and W. M. Beeson, Purdue: Preliminary research indicates the amino acid lysine—and perhaps methionine—may be of value to beef cattle in helping them to utilize higher levels of urea more efficiently in their rations.

In one experiment, supplements containing from 3.7% urea (40% protein) to 18.5% urea (72% protein) were compared with and without 10 gm. of supplemental l-lysine HCl per head daily. When the lysine was fed with the various levels of urea, gains

ranged from 2.03 to 2.22 lb. per day (ave., 2.14 lb. per day); when no lysine was fed, daily gains ranged from 1.91 to 2.15 lb. (ave., 2.02 lb.). In a second trial, similar benefits were obtained on high urea rations by feeding either 10 gm. of supplemental lysine or 10 gm. supplemental methionine.

CARCASS GRADE AND DRESSING PERCENT OF CATTLE FED DIFFERENT LEVELS OF PROTEIN IN HIGH-GRAIN RATIONS—C. E. Summers, Wise Burroughs, E. A. Kline and Walter Woods, Iowa: A level of approximately 10.5% total protein appeared to be adequate for yearling steers. Levels of from 8.5 to 13.5% protein were fed in a corn-hay-protein supplement diet. Both carcass grade and dressing percent were increased with each succeeding higher level of ration protein up to approximately 11.5%. Feedlot performance was optimum when the ration contained as little as 9.5% protein and was not improved by higher levels.

Vitamin A

INFLUENCE OF FREQUENCY OF FEEDING PROTEIN SUPPLEMENT UPON DEVELOPMENT AND PRODUCTION OF RANGE BEEF FEMALES—A. A. Melton, J. H. Jones and J. K. Riggs, Texas: For years it has been assumed that when sufficient carotene is available, beef cattle will meet their vitamin A requirements through the conversion of carotene. However, so many field reports have shown stimulation in fattening cattle through the use of supplemental vitamin A that an evaluation of carotene and vitamin A requirements for beef cattle seems necessary.

LEVELS OF SUPPLEMENTAL VITAMIN A FOR FATTENING BEEF STEERS—T. W. Perry, W. M. Beeson and R. C. Holz, Purdue: Levels of 0, 2000, 4000, 8000, 16000 and 32000 I.U. of vitamin were fed to fattening beef cattle which were receiving enough carotene from the yellow corn in their rations to meet their theoretical vitamin A requirements. However, cattle on the higher levels of supplemental vitamin A gained more rapidly and showed a higher blood plasma vitamin A level than the control group receiving no supplemental vitamin A. Cattle whose rations were supplemented with the vitamin A palmitate withstood the hot summer much better as evidenced by little or no panting and by staying "on feed" much better. During the last 42 days of the experiment, the feeding of 80 mg. aureomycin per head daily resulted in a highly significant increase in rate of gain for the vitamin A-supplemented steers.

EFFECTS OF NITRITE CONTAINING RATIONS IN PRODUCING VITAMIN A AND VITAMIN E DEFICIENCIES IN RATS—B. L. O'Dell, Zuhal Erek, Laura Flynn, G. B. Garner, and M. E. Muhrer, Missouri: Speculation has been raised as to why we now have apparent vitamin A deficiencies in cattle fed adequate levels of carotene, when this apparent condition did not exist a decade or two ago. One explanation that has been proposed is the higher levels of nitrites and nitrates in plants we now have due to higher nitrogen fertilization of soils. The Missouri workers present data from rat research which indicates nitrites may play a definite role. Not only did the feeding of potassium nitrite to rats cause a more rapid depletion of vitamin A, but it precipitated a vitamin E deficiency on a diet normally adequate in vitamin E.

Feedstuffs and Methods Of Feeding

GRAIN PREFERENCE AND RESPONSE TO STILBESTROL IMPLANTS BY CREEP-FED BEEF CALVES—J. C. Meiske, A. L. Harvey and O. E. Kolari, Minnesota: Creep-fed Hereford and Angus beef calves expressed a marked preference for rolled corn over barley or oats. In a 126 day trial, percentage consumption of the three rolled grains was, corn, 66%; barley, 32%, and oats, 2%. The implanting of the calves at 50-75 days of age with 12 mg. of diethylstilbestrol resulted in 8.8% greater gains and ⅛ higher feeder grades at weaning time. Subsequent 152 day gains in the feedlot were not affected by the previous diethylstilbestrol implantation.

INFLUENCE OF FREQUENCY OF FEEDING PROTEIN SUPPLEMENT UPON DEVELOPMENT AND PRODUCTION OF RANGE BEEF FEMALES—A. A. Melton, J. H. Jones and J. K. Riggs, Texas: Protein feeding for ruminants is quite different than for swine. In swine feeding the supplemental protein should be fed daily and perhaps even at the very moment that other constituents of the ration are being fed. This is the basis of one of the arguments for complete mixed rations for swine. On the other hand, Texas research reported here showed it made no difference whether you fed supplemental protein daily, twice weekly or three times weekly, as long as the total weekly amount is the same. Two trials were used to study this problem. In one trial, choice weaned heifer calves were used. In another trial, two-year-old heifers that calved were used.

INFLUENCE OF FEEDING A GROUND SHELLED CORN-UREA DIET WITH AND WITHOUT ROUGHAGE ON GROWING-FINISHING BEEF STEERS—M. B. Wise, G. Matrone, T. N. Blumer and E. R. Barrick, North Carolina: The use of all concentrate rations for fattening beef cattle has attracted a great deal of interest. Probably this is not the most economical method for feeding cattle, but it has many mechanical advantages. The North Carolina workers fed a corn-urea diet which was fortified with minerals, vitamins and 2% cottonseed oil. This ration was fed either without or with a small amount of hay. Also, sodium acetate and potassium acetate were tested. Calves fed the concentrate ration—but no hay—hung a better finished carcass than those whose ration contained 2.5 lb. hay per day, although there was little difference in rate of gain. Calves fed either sodium or potassium acetate in their rations showed least finish. Digestive disturbances were not encountered except slight diarrhea among calves fed the diets containing Na and K salts.

This research gives additional evidence that if the ration is properly balanced, the ruminant can get along very well with little or no roughage in the ration.

THE FEEDING VALUE OF CORN VERSUS SORGHUM SILAGE FOR LACTATING DAIRY COWS—R. P. Niedermeier, R. D. Lance, B. R. Baumgardt and C. R. Krueger, Wisconsin: Corn silage proved somewhat superior to forage sorghum silage for lactating dairy cows, when measured in terms of fat corrected milk produced. Silages should be compared on the basis of their grain content. It is not to be expected that a forage sorghum silage containing a very small amount of grain can measure up to a corn silage containing a high level of grain.

FEEDING VALUE FOR FATTENING CATTLE OF CORN SILAGES TREATED TO INCREASE THEIR CONTENT OF ORGANIC ACIDS—Earle W. Klosterman, A. L. Moxon, Ronald R. Johnson, Harold W. Scott and Jack VanStavern, Ohio: The

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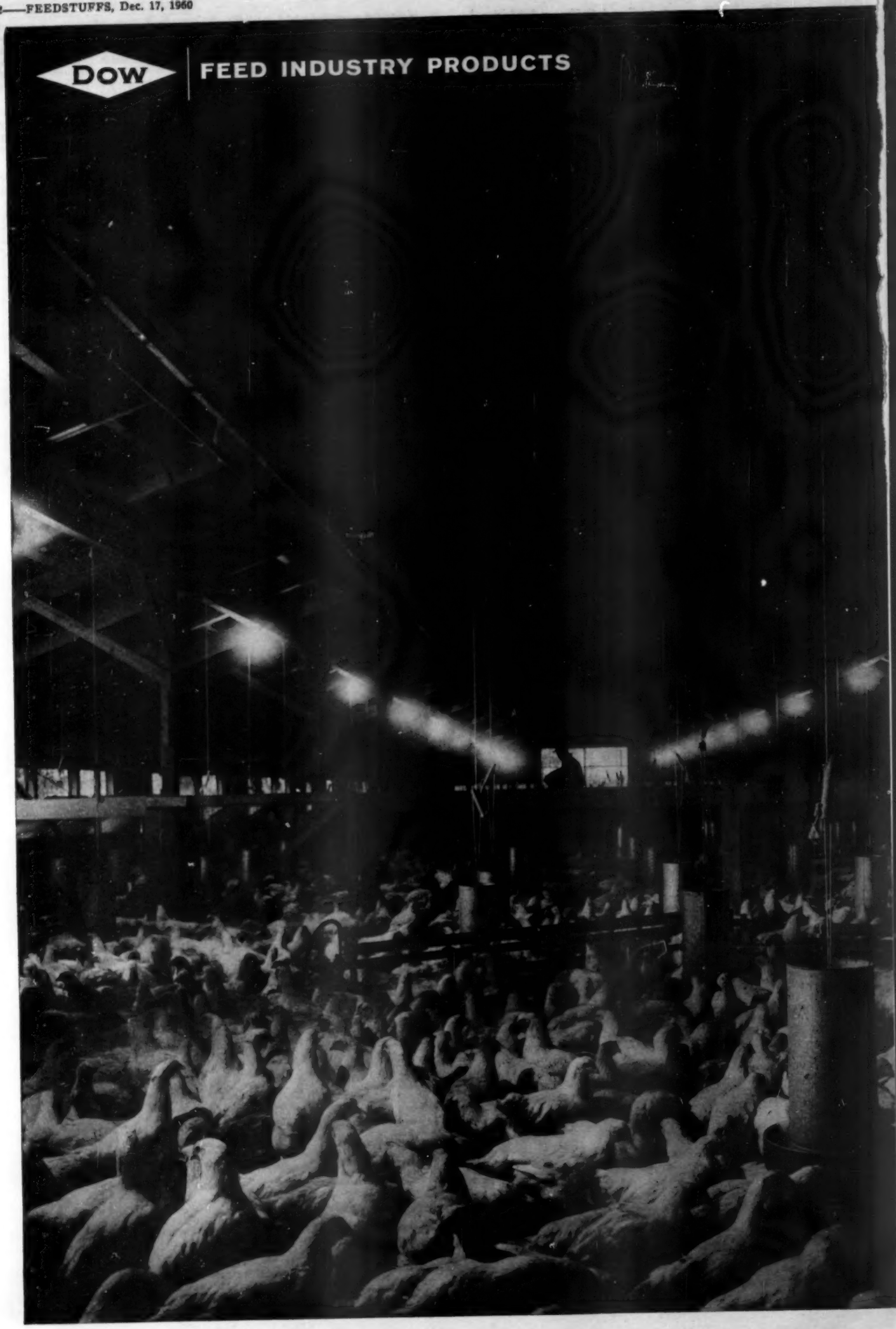
DOW | FEED INDUSTRY PRODUCTS



Broilers on

ZOAMIX

get top "coccy" protection . . . require no withdrawal time

Feed manufacturers, independent research laboratories and college experiment stations have made Zoamix® a thoroughly pre-tested coccidiostat. Trials have been run since 1955.

If you're growing birds . . . protection and feed conversion are of prime importance. Zoamix is as effective as any presently available coccidiostat . . . more so than 8 of 9. Zoamix is effective against the strains known to cause outbreaks of coccidiosis.

The results of comparative feed trials are shown in the chart below. Very often 10,000 birds will return an extra $250.00 profit (frequently much more) over flocks fed other coccidiostats.

RATE OF GAIN AND FEED CONVERSION COMPARISONS

	Zoalene* Compared with Following Coccidiostats	A	B	C	D	E	F	Totals
	Number of Comparative Tests	29	15	16	23	5	6	94
NUMBER OF TESTS IN WHICH:	Zoalene Superior for Weight Gains	28	14	16	14	5	6	83
	Other Coccidiostat Superior for Weight Gains	1	1	0	8	0	0	10
	No Difference in Weight Gains	0	0	0	1	0	0	1
	Zoalene Superior for Feed Conversion	26	10	14	15	2	6	73
	Other Coccidiostat Superior for Feed Conversion	1	2	2	7	2	0	14
	No Difference in Feed Conversion	2	3	0	1	1	0	7

*the active ingredient in Zoamix

If you're formulating feed . . . you'll appreciate the margins of safety Zoamix affords. It's safe to switch from another coccidiostat without a growth setback. It's compatible with commonly used additive and feed ingredients and won't alter nutritional requirements. Although recommended for growing chicks only, Zoamix won't cause physical injury if mistakenly fed to other farm animals. Zoamix can be fed to replacement birds as well as broilers. Assaying is simple, speedy. Zoamix can be pelleted and repelleted, will not cake or lose potency even when stored for prolonged periods . . . or subjected to severe temperature fluctuations.

If you're a poultry processor . . . Zoamix can be fed right up to marketing time. No withdrawal time is required. Feeding Zoamix results in no change in hematology, histology or organ weights . . . nor will it impart any "off flavors."

You'll fret less . . . profit more by adding Zoamix. Stocks available now from several warehousing points. For aid in registration or technical service write: Feed Industry Sales Section, Agricultural Chemicals Department.

THE DOW CHEMICAL COMPANY
MIDLAND, MICHIGAN

Ohio workers have employed an interesting approach for creating a higher concentration of organic acids in silage. It is assumed that in the silage fermenting process the action takes place until a certain degree of acidity is formed. Then the action is shut off and remains status quo until something disturbs it, such as the entry of air. In the research reported here, limestone was added so that more acid would be formed in order to reach the "shut off" level of acidity. This caused a 78% increase in the production of lactic acid. The rumen can digest and utilize the organic acids quite readily. Steers fed the treated silage gained 11.7% faster and required 7.4% less dry corn per pound of gain than those fed the untreated silage.

EFFECT OF CERTAIN FEEDSTUFFS UPON THE DIGESTIBILITY OF ALFALFA-BROME SILAGE—O. E. Kolari, A. L. Harvey and M. E. Davison, Minnesota: A series of additives to a predominantly alfalfa-brome silage were studied to determine their effect on digestibility. In general, the addition of small amounts of corn, molasses, dehydrated alfalfa meal or alfalfa brome hay were without significant effect upon digestibility. However, the addition of protein in the form of urea, linseed oil meal and dried distillers solubles resulted in increased protein digestion.

SUBSTITUTION VALUES FOR CORN AND ALFALFA-BROME FORAGE FOR FATTENING STEERS—Walter Woods, J. M. School and Earl O. Heady, Iowa: Six combinations of corn and green chop brome-alfalfa forage were fed during the pasture season and compared for rate of gain, efficiency of gain, cost of gain, and time required to produce choice slaughter steers. The combinations of brome-alfalfa forage to corn ranged from 20-1 to 2-1. The average daily rate of gain increased as the level of corn in the ration increased (1.34 to 2.66 lb. per day). The length of time required to produce choice steers varied from 150 days for the highest level of corn to 243 days for the lowest level of corn.

EFFECTS OF ENERGY IN STEERS FED CORN-SOYBEAN MEAL RATIONS—R. S. Gordon and E. S. Erwin, Monsanto Chemical Co.: Another set of data shows that when a balanced ration is fed to cattle, little or no roughage is required. Cattle were fed a ration of cracked corn and soybean oil meal. Comparative treated groups' rations were altered by the addition of either 7.25% tallow or 30% alfalfa hay, or both. Steers fed the additional tallow gained most rapidly while those fed both hay and tallow in addition to their corn-soy ration gained least.

EFFECT OF VARIOUS DRYING TEMPERATURES ON THE VALUE OF CORN IN BEEF CATTLE FATTENING RATIONS—D. Richardson, J. K. Ward, W. S. Tsien, F. W. Boren, E. F. Smith and B. A. Koch, Kansas: The temperature employed in drying corn was without apparent effect as far as the beef cattle consuming the corn were concerned. Corn containing 25% moisture was dried by forced air with no artificial heat; forced air at 180° F.; or forced air at 230° F. Corn dried at the highest temperature faded, separated from its seed coat when rolled and was not as palatable, initially. However, following the adjustment period, feeding results from a 215 day feeding trial showed no significant difference among the three types of corn.

THE RESPONSE TO STILBESTROL ON PASTURE-FED ZEBU STEERS—L. R. Quinn, G. O. Mott and W. B. Bischoff, Ibec Research Institute: The implantation of diethylstilbestrol in different ages of Zebu steers was dramatically effective in stimulating growth rate. This is necessarily new knowledge as far as cattle are concerned, but it does give an insight to the potential for research in virtually untapped foreign fields. A 24 mg. implant in yearlings, two year olds and three year olds gave increases in liveweight gains of 12.6, 21.9 and 25.3 kilograms per head daily. Calves gave a similar response. Furthermore, a second implant of 24 mg. after a lapse of six months continued to give large response at the end of 12 months.

EFFECTS OF SHADE AND ESTRADIOL-TESTOSTERONE IMPLANT ON THE PERFORMANCE AND CARCASS CHARACTERISTICS OF SUMMER-FATTENED HEIFERS—F. W. Boren, E. F. Smith, B. A. Koch, D. Richardson and S. Wearden, Kansas: Under Kansas conditions shade is pretty important to beef cattle during the summer months. Fattening trials were conducted with 600 pound yearling heifers during the summer months. Some had access to shade and others did not. Some were implanted with 20 mg. of estradiol and 100 mg. testosterone, and others were not. Shade irrespective of implant and implant irrespective of shade resulted in a significant increase in gain. Shade had no effect on carcass grade, but carcasses from implanted heifers graded lower.

AVAILABILITY OF THE PHOSPHORUS IN VARIOUS SOURCES FOR DAIRY CALVES—R. A. Wentworth, M. B. Wise and S. E. Smith, Cornell: Dicalcium phosphate ranks quite high as a source of phosphorus for calves, based on work reported by the Cornell workers. Following dicalcium phosphate were defluorinated rock phosphate and Curacao Island phosphate. Least available form was soft phosphate. These classifications were based on rates of gain and general blood pictures.

EXCESS DIETARY MANGANESE AND FEED LOT PERFORMANCE OF BEEF CATTLE—N. W. Robinson, Sam L. Hansard, D. M. Johns and G. L. Robertson, Louisiana: Excessive supplemental manganese up to a level of 1000 ppm had no apparent effect on rate of gain of yearling beef cattle. Under in vitro conditions the ability of rumen microorganisms to digest cellulose was markedly reduced by the higher levels of manganese.

MOORMAN GUESTS — Moorman Manufacturing Co., Quincy, Ill., recently played host to two guests. They were the senior research scientist of the South African Bureau of Standards and the head of the Missouri Department of Agriculture feed laboratory. From the left, above, are: S. E. A. Eilertsen, South African Bureau of Standards, South African Council for Scientific and Industrial Research, Pretoria; G. M. Barnhart, Missouri Department of Agriculture, Jefferson City; Mrs. Randal Hill, MoorMan research microscopist, and Albert J. Gehrt, head of MoorMan's Quality Control Department.

South African Visitor Studies Microscopy

QUINCY, ILL.—Recent guests at the MoorMan Manufacturing Co. research department here were S. E. A. Eilertsen, senior research scientist, South African Bureau of Standards, South African Council for Scientific and Industrial Research, Pretoria, and G. M. Barnhart, head of the state feed laboratory, Missouri Department of Agriculture, Jefferson City, Mo.

Mr. Eilertsen has been in the U.S. several weeks studying feed microscopy. He studied first with Irby H. Brown, vice president, American Association of Feed Microscopists, Virginia Department of Agriculture, Richmond, Va., for a week. He was in Washington a few days, spent a day in New York City and then went to Jefferson City.

Learning Techniques

He worked with Mr. Barnhart, secretary-treasurer, American Association of Feed Microscopists, for the past three weeks and will be with nim another two weeks during which time he is learning the techniques of feed microscopy.

Mr. Eilertsen is an expert with a microscope, according to Mr. Barnhart, who says that he has completely torn down each of the Missouri lab microscopes at Jefferson City, rebuilt them and put them in A-1 operating condition. He is an apt pupil and he has learned a great deal about microscopy technique, Mr. Barnhart said.

In Little Rock, Ark., he studied with Lewis Barefield, also a member of the association. Specific microscopy in the fields of histology and weed seed studies were covered there.

Heads Standards Bureau

Mr. Eilertsen was born in South Africa. His father, a sailor, kept his family in South Africa and between voyages spent time with them there. Mr. Eilertsen had two years of schooling in Norway, is a graduate of the University of Johannesburg and is in charge of the Bureau of Standards for South Africa, which sets the standards in the manufacture of livestock and poultry feeds.

While at MoorMan's, the visitors worked with Dr. W. P. Elmslie, vice president and director of research, and Albert J. Gehrt, head of the Quality Control Department. Mr. Gehrt is president of the American Association of Feed Microscopists.

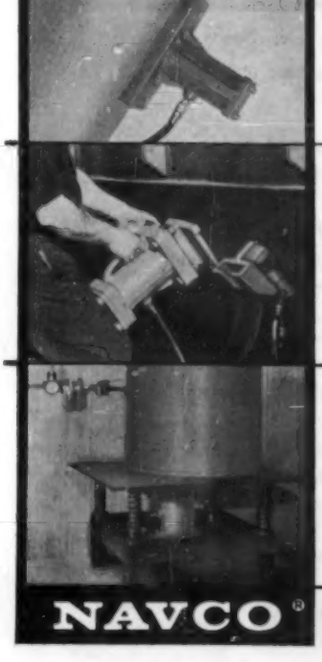
Richardson Scale Post to John LeMay

NEW YORK — John LeMay has been appointed manager of industry development for Richardson Scale Co., manufacturer of automatic weighing, bagging and proportioning equipment for industry.

John LeMay

Mr. LeMay, in this newly created position, will act as coordinator of sales activities within industries served by Richardson, supervising planned marketing of Richardson systems for both custom and standard products.

Joining Richardson in 1947, Mr. LeMay became senior project engineer several years ago, and earlier this year was appointed assistant manager, mechanical engineering.



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Navco Air Vibrators have a patented one-piece design for trouble-free operation. No need to stock spare parts—no assembly bolts, housing springs, separate striking plates, or grooved pistons in Navco Vibrators. For bins, hoppers, chutes, concrete forms, and batching.

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Navco "Maintenance-Free" One-Piece HCP Air Vibrators* have long piston stroke for maximum amplitude and thrust—eliminate car "clean-out" of potash, cement, and other bulk materials. Piston is the only moving part. "Free-ride" design gives continual effective vibration action. Hydraulic clamp assembly available for car not equipped with brackets.

VIBRATOR TABLES
for Settling, Packaging, Scaling, Testing

Operator controls vibration frequency by changing the air pressure—gets required vibration for settling, packaging, shock or fatigue testing, or scale removal on castings. Complete with automatic lubricator, pressure regulator w/gage and knee, foot, or hand lever valve.

*Patented
Write Dept. FS-12 for catalog specifying vibrator application

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Hammermills

for every grinding need

With Jacobson you "fit the hammermill to the job," not "the job to the hammermill." Jacobson offers a complete line of hammermills, with variations in size, capacity, style and horsepower, to fit every feed and cereal mill installation. Thus, the mill owner is assured of most efficient use of power, constant uniform grinding, and "maximum output" with "minimum maintenance."

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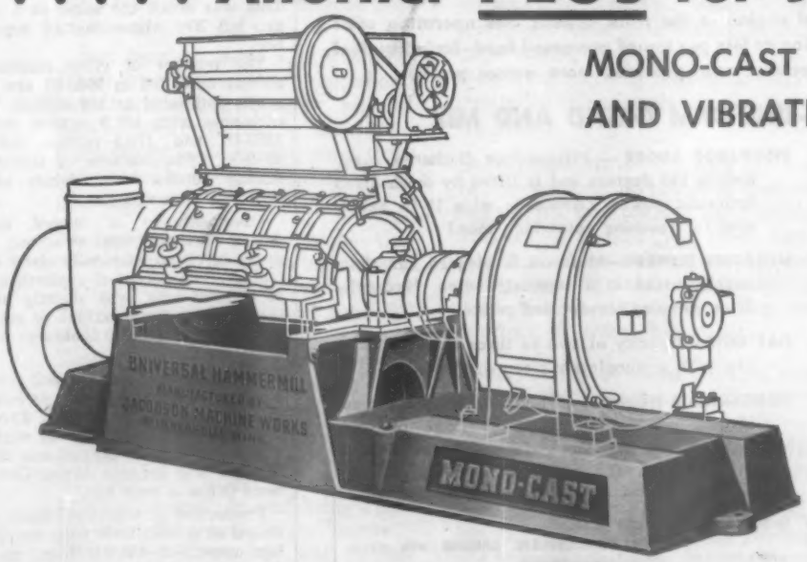
Jacobson UNIVERSAL Model "C" Hammermill with Rotary Feeder 6 sizes; 40 to 200 H.P.

. . . . . Another PLUS for Jacobson Users!



MONO-CAST BASE FOR LONG LIFE AND VIBRATION-FREE OPERATION

The Jacobson hammermill base is a single massive casting, ribbed for strength. This type of construction makes it unnecessary to connect separate bases for the hammermill and motor by bolts or welding. Instead, the rigidity and heavy weight eliminate harmful vibration.

The rotor bearing and motor mounting surfaces are planed to perfect alignment in one operation. After the rotor head and motor are mounted, they are dowelled to maintain this perfect alignment.

A familiar demonstration by Jacobson hammermill owners is the balancing of a ten penny nail on its head on the hammermill while grinding. This illustrates the smooth operation which results from the Jacobson Mono-Cast Base . . . and which assures years of maximum production with minimum maintenance.

Write for Bulletins and Name of Representative

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50 LBS. NET
MAYO'S NEW-IMPROVED SNOW FLAKE
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PEA SIZE

COMPARE "SNOW FLAKE" with any other OYSTER SHELL It's Better

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Farm Group Considers Boycotting Integrators

DES MOINES—A boycott of feed companies which are active in integration was proposed at the recent convention of the National Farmers Organization here.

Oren Lee Staley, president of the group, told 2,500 persons from 12 states gathered for the meeting, "Vertical integration threatens the future of a family type agriculture, and if continued by feed companies, we will have no choice but to buy from their competitors." He defined "vertical integration" as the process by which a company or companies control production, processing and marketing or any combination.

Mr. Staley outlined a "no-sell, no-buy campaign" which could be coordinated with a previously adopted withholding campaign. The program would be aimed at processors who do not meet NFO price requirements. Members would not sell farm commodities to any processors or packers who do not agree to their predetermined price terms, the stated purpose being to obtain a contract for farm commodities with processors.

The price requirements set by NFO call for $19.60 for hogs, $32.45 for cattle and $6.05 for grade A milk.

Livestock Men Say Small Farm Feedlots Not Suited to Texas

By Special Correspondent

ABILENE, TEXAS — A group of west Texas livestock men who recently made a tour of Corn Belt feedlots returned home with the opinion that small farm feedlots might not pay off for this area.

Loyan Walker, head of the agricultural department of the West Texas Chamber of Commerce, thinks that whatever type of cattle feeding develops here will be quite different from that of the Midwest.

For one thing, he says that the 192-acre average farm unit of the Midwest would not be feasible here, since west Texas cannot grow as much grain and hay per acre. Another reason is that many of these smaller feedlots are managed by the farm family, with everyone doing his part. In west Texas, where big farming prevails, most work is done by Mexican braceros and other hired help. Some of the feeders on the tour feel the average farm family in Texas would not provide the management and labor needed to make small feedlots profitable.

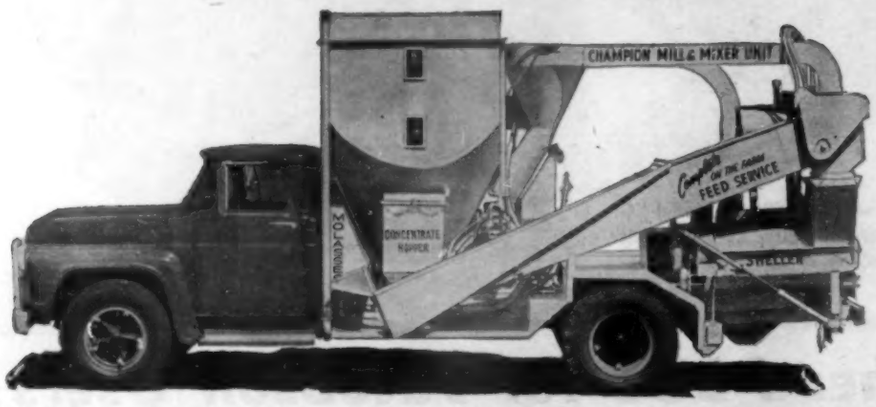
If any type of feeding is developed for west Texas, it will be on a much larger scale, with fewer farmers involved, they say.

One of the men, Jim Kelly, a farmer and livestock feeder, said that in his opinion, management would be the main stumbling block to farm feedlots in west Texas. Since farmers and ranchers hire much of their work, they would need to feed several hundred cattle to make the project worth while.

Although cattle feeding has increased in the Southwest the last three years, most of this has been in big feedlots ranging from 400 head on up to several thousand.

The Greatest Breakthrough in the Mobile Industry by

CHAMPION



CHAMPION'S new unit powered with a single Diesel engine in the truck chassis cuts operating costs 50% or more! Fuel consumption reported at one gallon or less per ton of processed feed—*including fuel used on the highway!* New design means less maintenance cost—provides more owner profits.

CAPACITY — CLEANLINESS — UNIFORM GRIND AND MIX

POWER—GM 4-53 Diesel Engine. Approved installation by Detroit Diesel in an F-700 Ford chassis.

GRINDER—High-capacity, heavy-duty hammermill. Direct drive from truck Diesel without gears or belts.

FEEDER—Variable-speed 14-ft. drag—swings over 180 degrees. Drag is lifted by mechanized hydraulic power.

MAGNET — Powerful permanent-type magnet. All grain, ear corn and hay is fed over the magnet before entering the grinding chamber.

BELTLESS MIXER—Two- to three-ton mixing capacity. A genuine mixer regardless of the feed ingredients being mixed. The mixer has no drive belts or chains. It is directly-driven with all components hydraulically driven.

DISCHARGE AUGER — Fifteen-foot discharge auger swings 180 degrees and is lifted by mechanized hydraulic power. (Available with 10-ft. extension for reaching extra high bins.)

MOLASSES BLENDER—Molasses is blended and thoroughly mixed in a complete batch. Hydraulic drive actuates blender and pump.

HAY UNIT—Capacity of two to three bales per minute, with a completely clean operation.

CONCENTRATE HOPPERS—A platform hopper for unloading concentrate from the large platform directly into the mixer, and one hopper located at a lower level for ground loading.

OPTIONAL EQUIPMENT AVAILABLE

SHELLER with high discharge for loading cubs directly into truck or trailer.
AIR UNLOADING plus standard auger.
TEN-FOOT EXTENSION for discharge auger.
ROLLER MILL.
BULK CONCENTRATE CARRIER with six 600-lb. compartments.
VOLUME MEASURING UNIT measures by bushel, all grain being ground.

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CHAMPION PORTABLE MILL CO. 2109 COMO AVENUE SOUTHEAST MINNEAPOLIS 14, MINNESOTA

Feedstuffs Output Shows Increase

WASHINGTON — Production of feedstuffs during October increased seasonally with an output of nearly 2 million tons, according to a U.S. Department of Agriculture report. This was about the same as a year ago but 20% above that of September.

The number of grain consuming animal units fed in 1960-61 are currently estimated at 166 million. This compares with 167.9 million fed in 1959-60, and 170.4 million fed in 1958-59. Disappearance of feedstuffs during October was slightly above that of a year ago.

Disappearance of oilseed meals during October was at about last year's level but seasonally above September. The output of soybean meal, at 830,100 tons, was slightly above last year, and the output of cottonseed meal, at 353,000 tons, was somewhat smaller.

Production of linseed meal totaled 43,100 tons during October as against 55,200 tons a year earlier. Production of copra meal was up slightly, while peanut meal output was down. Exports and imports during October were below a year ago.

Production of wheat millfeeds continued at a high level with the October output of 436,400 tons, up 2% from a year ago. Production of other grain byproduct feeds was at about last year's level. Disappearance of fish meal increased slightly with larger imports.

Shipments of alfalfa meal during October were down somewhat from a year ago, with stocks at plants on Oct. 31 at 558,000 tons as against 475,000 a year earlier.

Despite the almost annual introduction of new coccidiostats...

nfz® and *bifuran* still come closest to what you and your customers look for in a coccidiostat for replacement birds!

During the last few years — amid a lot of fanfare and promises — several new coccidiostats have been introduced to the feed industry.

While some have started off well, they have failed to live up to their advance billing. Not one has solved the coccidiosis problem.

Unfortunately, there is *still* no such thing as a perfect coccidiostat. We don't have one . . . and neither does anyone else.

But here's a point worth noting: While many heralded coccidiostats have come and faded away, *nfz* and *bifuran* have continued in demand for replacement birds. In fact, use of these two products in replacement feeds is growing.

No registration headaches — One reason behind the increasing demand for *nfz* and *bifuran* is the fact that you can use either of these coccidiostats *without registration problems.* They are not new drugs and are cleared for use in combination with almost all commonly used additives.

But a more basic reason is found in a recent survey in which feed manufacturers were asked, "What do you look for primarily in evaluating a coccidiostat for replacement birds?" The survey shows *nfz and bifuran come closest to providing the benefits wanted.*

Considered by far the most important feature of a coccidiostat for replacement birds is the building of "lifetime immunity" . . . followed by the "safety" of the drug. *nfz* and *bifuran* deliver both of these major benefits . . . plus many additional features that distinguish them from other coccidiostats. Following is the complete *nfz* and *bifuran* protective package:

Lifetime immunity to coccidiosis by housing time... that's a "must" for replacement birds. Both *nfz* and *bifuran* allow lasting immunity development, the natural way—by permitting a mild, controlled infection during the growing period.

Safe, nontoxic — Neither *nfz* nor *bifuran* has harmful effects on internal egg quality, shell texture, hatchability or fertility. Unlike most other commonly used coccidiostats, *nfz* and *bifuran* can be safely fed to laying hens. Also, these two medications are nontoxic to livestock and pets.

Control outbreaks — You can raise the *nfz* or *bifuran* intake to the coccidiosis treatment level...safely... without bringing in another drug. This is not possible with some coccidiostats.

Antibacterial — In addition to aiding in the lifetime immunity process, *nfz* and *bifuran* knock out many secondary infections that can sap vitality, cause nonproductive runts and culls. They give you more than just coccidiosis protection.

Effective against pullorum — By increasing the *nfz* or *bifuran* level to 3 lbs. per ton of feed for 10 to 14 days, you can prevent mortality from pullorum. There's no need to come in with other drugs.

In the light of current registration headaches and confusion about coccidiostats, we wanted to remind you that perhaps *nfz* and *bifuran* can help solve problems for you. They are still doing the same effective job of controlling coccidiosis and allowing immunity they've always done.

For an *nfz-bifuran* reviewing session, get in touch with your Hess & Clark representative.

Effective against necro in pigs

While you have nfz or bifuran in your mill, here's another use for the same medication. nfz (at a level of 10 lbs. per ton of feed) and bifuran (at an 8-lb level) are effective, low-cost treatments for infectious necrotic enteritis in pigs. Self-fed to the entire herd for 5 to 7 days, these drugs prevent disease damage and allow the pigs to overcome the disease drag of necro.

HESS & CLARK
ASHLAND, OHIO
Division of Richardson-Merrell Inc.

NEW LOOK, but still the same dependable products — nfz and bifuran in their new 50-pound polyethylene-lined bags.

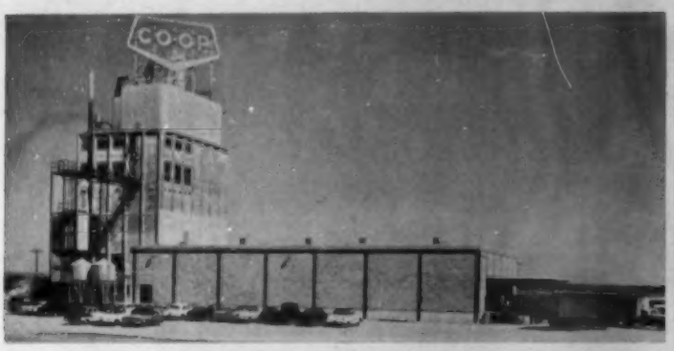
ZT-1-1

SCALE DIAL—Movement of finished feeds in bulk is controlled from this room in Federated Co-op's new feed mill at Saskatoon, Sask. Fifty-ton scale weighs truck and prints weight ticket. Operator is shown at controls of air-operated slide gates under bulk bins.

MICRO SYSTEM — Micro-ingredient system facilities shown here are used to weigh out small quantities of materials by hand. Bucket and 150-lb. scale are moved on a trolly to a dump sink which is emptied into 2-ton batch mixer when called for by control panel in new million-dollar mill.

CONTROL ROOM — Allen Bradley push-button control panel permits one man to weigh out all bulk ingredients and to control operation of mixer, surge bin and air conveyor. An automatic time cycler operates successive stages automatically once a batch is drawn off into the scale.

PACKER — This Continental packer bags pellets, crumbles and mash feeds. An E-50 Richardson scale nearby supplements the installation. Any spillage is continuously elevated back up into the bagging bin. Federated Co-op manufactures 72 different branded feeds at Saskatoon plant.



NEW MILL AND WAREHOUSE—This is new mill and 80 by 140-ft. warehouse of plant recently opened by Federated Cooperatives, Ltd., at Saskatoon, Sask. Six large bulk bins used for loading bulk delivery trucks have been installed above a platform scale in front of the mill. Incoming bulk ingredients are received by box car, hopper car or truck. New 100-ft. high mill stands on five-acre site.

WAREHOUSE—Bagged feeds in tall stacks inside 80 by 140-ft. warehouse adjoining new co-op mill at Saskatoon, Sask., are indicative of the 72 different lines of branded feeds in production. Federated's annual feed sales were $2,500,000 in 1959.

Canadian Firm Describes Operation of New Mill

Seventy-two different lines of branded feeds are in production in a new, six-story, million-dollar formula feed mill which stands nearly 100 ft. high on a five-acre site in the Sutherland district of Saskatoon, Sask. (Feeedstuffs, Nov. 19, page 96).

Operated by Federated Cooperatives, Ltd., the mill can produce approximately 96 tons or more of livestock and poultry feeds in an eight-hour shift.

Adjoining the 40 by 60-ft. plant is a one-story, 80 by 140-ft. warehouse for storage of finished, bagged feeds. Six large bulk bins used for loading bulk delivery trucks are above a platform scale in front of the mill.

By rail or by truck, raw ingredients are unloaded into a pit leading to the basement of the manufacturing area, screened and then conveyed to storage bins in the uppermost floor. From then on, little of the manufacturing processes or ingredients can be seen. Materials are conveyed downward in chutes by gravity or upward in chutes by streams of air or by bucket lifts.

At least 75 different raw materials are used as ingredients. About 40 of these are micro-ingredients.

Push-Button Control

Manufacturing processes are controlled by push-buttons. Ingredients are selected and weighed, sent through the many mixing and manufacturing stages, then delivered to storage bins.

Seventy-two different lines of Co-op feeds and many special prescription orders are being manufactured in the new mill. Also, many sundry supplies, such as salt, bone meal, dehydrated alfalfa, molasses, beet pulp, feeding oils, antibiotics and veterinary needs are distributed from the plant.

The final design of the new feed mill was a product of Underwood, McLellan & Associates of Saskatoon, with whom Paul Berg, Ft. Wayne, Ind., consulting engineer was associated for the project. Strong-Scott, Ltd., Winnipeg, Man., was the major supplier of machinery for the plant.

Flow Described

Incoming bulk ingredients are received by box car, hopper car or truck. Receiving hoppers, fitted with rack and pinion discharge gates, feed to a Link-Belt dust-tight conveyor equipped with a magnetic head pulley which removes any tramp iron.

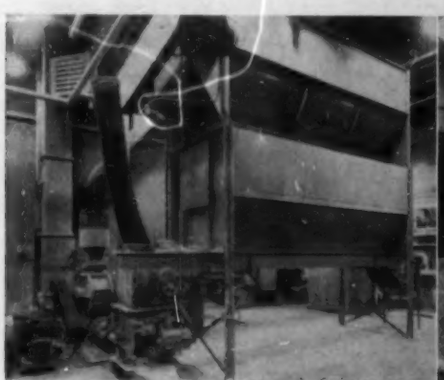
A Strong-Scott bucket elevator takes ingredients to a No. 21 Orville Simpson "Rotex" for scalping.

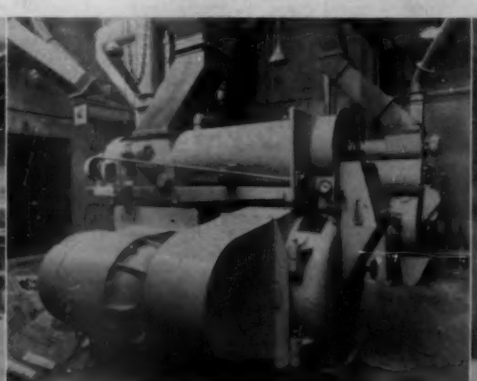
Scalped ingredients are delivered by a Strong-Scott bucket elevator to either of two 10-in. turnheads for distribution to bins. There are 25 incoming ingredient bins, four of which are for whole grains.

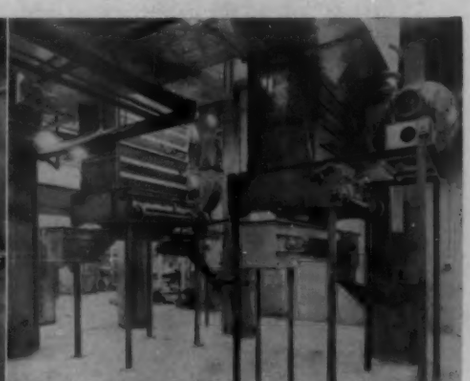
The receiving system is designed to handle 2,400 bu. of grain and soft feeds per hour, or 90 tons of minerals per hour. Grain is cleaned for the custom bins in a Hart cleaner.

Whole grains are ground with a No. 6 Jacobson hammermill, and delivered to the ground grain bins by a 40-h.p. Sprout-Waldron hammermill "Pneu-Vac."

Oats are hulled and rolled with a Roskamp "Challenger" oat huller-roller combination unit, then deliv-







MIXER, PELLET MILLS, COOLERS—Two-ton Sprout-Waldron horizontal batch mixer (first picture) in basement of new mill discharges into Strong-Scott surge bin and self-cleaning belt conveyor unit. A 60-h.p. Sprout-Waldron positive pressure conveyor system takes the mixed batch to the top of the mill for distribution to premix, mash, custom or bulk loadout bins. Two pellet mills (second picture)—a 75-h.p. Sprout-Waldron and a 50-h.p. California—have been installed so that there is ample working space around them. Taking hot pellets directly from the pellet mills are two Sprout-Waldron Model 375 pellet coolers (third picture) with automatic adjustable louvres. Belt conveyors are used for gentle movement of the cooled pellets to Strong-Scott bucket elevators which move the pellets to crumblers and graders at the top of the mill.

SCREW FEEDERS—Shown here are some of the 31 Strong-Scott screw feeders—varying in size from 6 in. to 16 in.—in new mill at Saskatoon. They are used to draw off bulk ingredients from their storage bins into scale hopper.

ered to bins by a Day Co. 25 h.p. pressure blower.

Thirty-one Strong-Scott screw feeders and two Superior ex-binners feed into a 2-ton hopper scale. The screw feeders range in size from 6 in. to 16 in. in diameter, have 3 h.p. and 5 h.p. motors and run at a speed of 100 rpm.

A micro ingredient system weighs ingredients into a dump sink.

The 2-ton scale discharges into a Sprout-Waldron 2-ton capacity, horizontal, double acting, ribbon-type batch mixer. The mixer discharges through triple air-operated discharge gates onto a belt conveyor that takes the feed to a 60-h.p. Sprout-Waldron positive-pressure blower system.

Mixed feeds go through a Stearns drum-type magnetic separator and a No. 21 Orville Simpson "Rotex" scalper, and are then distributed to premix, mash, custom or bulk loadout bins.

Mixing

The mixing operation is controlled entirely from the control room. The operator starts the mixer belt conveyor air system. Feed ingredients are weighed by means of screw feeder momentary contact push-buttons and hopper weigh scale.

A time cycler is then switched to "operate," automatically opening the scale hopper and dump sink discharge gates which feed to the batch mixer.

The percent of liquid fat to be added to the mixer is pre-set on the control panel, and then controlled electrically for any desired quantity.

The ingredients are mixed for the pre-selected time period, then the mixer discharge gates automatically open to expell the contents into the surge bin, belt conveyor and air system. After the surge bin is empty, the timer recycles to repeat the operation.

A 20-h.p. S. Howes duplex agitator mixer provides for the continuous blending of molasses with mash pellets and crumbles.

Pelleting facilities consist of a 75-h.p. Sprout-Waldron and a 50-h.p. California pellet mill feeding to two Sprout-Waldron pellet coolers located in the basement where two Strong-Scott pellet elevators feed two Sprout-Waldron roll feeder-crumble roll-scalper units and, in turn, to pellet and crumble holding bins.

Bagging facilities consist of a Continental packer and a Richardson E-50 bagging scale.

Bulk loadout facilities consist of a 16-in. belt-width Ehrsam enclosed sliderboard conveyor, distributing pellets, crumbles and most feeds to the bulk loadout bins located over the truck scale.

Feed Volume Grows

Feed volume of Federated Cooperatives, Ltd., has increased sharply over the past decade—from $650,000 in annual sales in 1950 to $2,500,000 in 1959. Federated's total annual sales increased from $41 million in 1955 to $62 million in 1959.

Even though wheat is the predominant crop in the Canadian prairie provinces, livestock is an important source of farm income. In 1959, income from livestock accounted for 57.9% of total farm income in Alberta, 52.2% in Manitoba and 31.4% in Saskatchewan.

The cooperative is owned by and serves almost 500 consumer cooperatives and their 160,000 members in Saskatchewan, Manitoba and northwest Ontario.

CYCLONES — Sprout-Waldron and Day Co. positive and negative pressure pneumatic conveyor unit cyclones and fans have been installed on the roof of the mill recently completed at Saskatoon, Sask., by Federated Cooperatives, Ltd.

Massachusetts Study Lists Guideposts for Poultry Operations

AMHERST, MASS.—A survey of Massachusetts poultry farms, conducted by county extension agents last spring, is now summarized and ready for distribution, according to a report in the University of Massachusetts' department of poultry husbandry booklet, Featheredfax.

This bulletin explaining the results of the survey does not deal with management, says Robert M. Grover, extension poultry specialist. Instead, it contains information which producers and the allied industry may use as guideposts in planning future operations.

The information presented gives a pretty complete picture of poultry production as it exists in Massachusetts today. The following are excerpts from the publication:

—Approximately 75% of the poultrymen in Massachusetts are producing eggs. Ten per cent produce turkeys, and the remaining 15% produce started pullets or meat birds.

—Poultry production is a specialty with the majority of producers. There are fewer than 20% who conduct farm enterprises in addition to poultry.

—The larger flocks, though less numerous than small flocks, account for the major volume of production.

—At least two thirds of the poultrymen in Massachusetts are engaged to some extent in retailing their product. Two thirds of those who retail sell at least half of their production by this method.

—Nearly a third of the producers are employed off the farm, either in full-time or part-time jobs.

—There is evidence that the younger men are operating many of the larger producing units, in fact, the majority of them. Most of the producers are involved in direct selling to consumers or through jobbing channels, to take advantage of the sales opportunities available in an urban state.

The bulletin is entitled "A Survey of Poultry Farms in Massachusetts, 1960."

Test Drying Method

UNIVERSITY PARK, PA.—Agricultural engineers at Pennsylvania State University are investigating conduction heating as a method for drying corn. Under this method corn is dried by direct contact with a heated surface.

According to Dr. Nuredin N. Mohsenin, associate professor of agricultural engineering, through conduction most of the heat can be utilized for removing moisture from the kernels and the heat losses due to heated air can be minimized.

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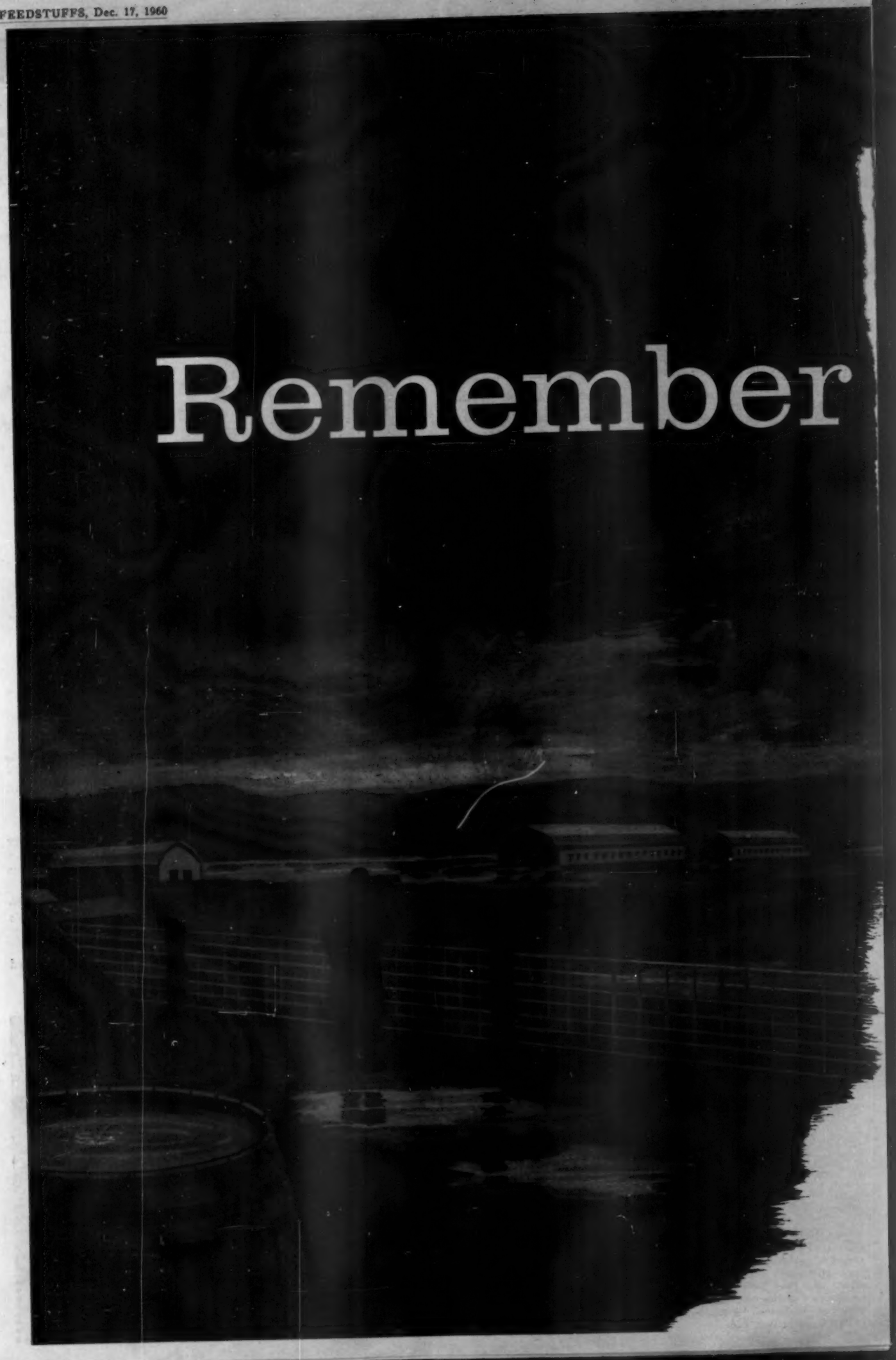
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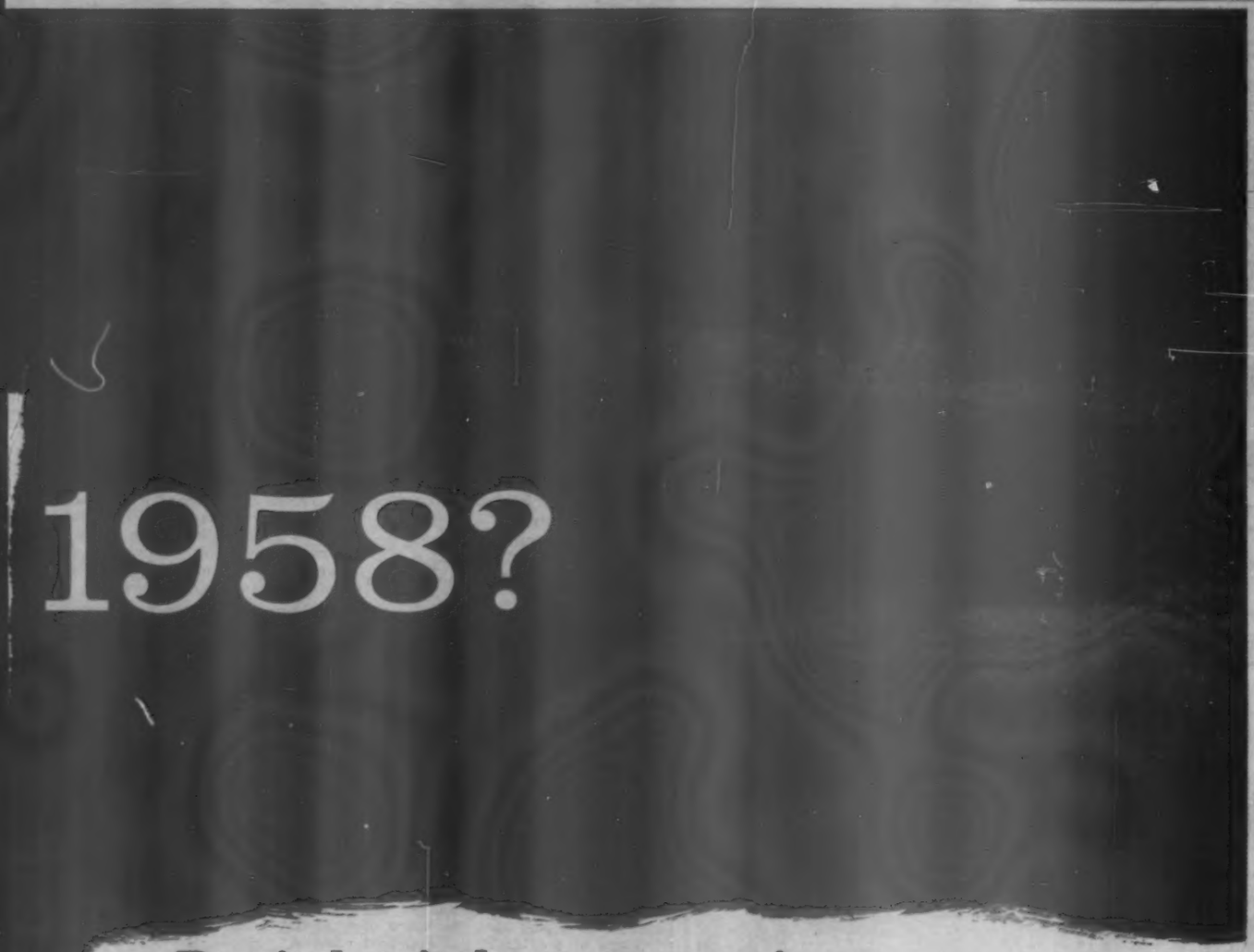

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1958 was the year Dr. Salsbury's Unistat was first given widespread trial by growers. It was also a year marked by bad weather which triggered disastrous coccidiosis outbreaks across the country. This gave Unistat a chance to prove its worth under bad field conditions right alongside other coccidiostats. *Unistat-protected flocks came through almost unscathed,* although nearby flocks suffered serious loss. Since then, Unistat has grown steadily in popularity until today it is fed to over a billion broilers a year.

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Width	30"
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2—10" x 2½" Molded on Rubber Wheels
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Dumps Through 8"x13" Gate Just Ahead of Axle
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Report of . . .

Technical Projects Committee . . . *Introductory Remarks*

By Dr. Stanley R. Ames
Distillation Products Industries

EDITOR'S NOTE: The two related reports here are the continuation of a series of papers presented at the 1960 annual meeting of the Animal Nutrition Research Council in Washington, D.C. Dr. Ames' introductory remarks explain ANRC's efforts to investigate and establish bioassay standards for vitamins A, E and K. The report below concerns the problems of vitamin D bioassay. Further reports in this ANRC series will involve proposed reference standards for vitamins A, E and K. In preceding issues of Feedstuffs, ANRC papers discussed methods for measuring protein quality and factors influencing nutritional values of trace elements in feedstuffs.

Last year we embarked upon an ambitious program to investigate and establish bioassay standards for vitamins A, E and K. These ANRC Reference Standards should be suitable either as oral supplements or dietary additives. They would be desirable for interlaboratory comparisons of various products and as standards for reference for various research programs.

The Technical Projects Committee believes that an ANRC Reference Standard should possess as many as possible of the following properties:

1. High purity.
2. Easily analyzed by chemical procedures.
3. Reasonably stable when mixed in feeds.
4. Easily obtainable in the necessary quantities.
5. Known content of biologically-active isomers.
6. High biological availability.
7. Known relationship to present SP and International Standards.

The presently available standards for vitamins A and E do not meet all of the above requirements. There is no bioassay standard for vitamin K.

One of the critical problems associated with the introduction of ANRC Reference Standards is distribution. We have approached Dr. Lloyd Miller of the U.S. Pharmacopoeia and are pleased to report that the board of trustees of the U.S.P. has approved our proposition to distribute ANRC Feed Standards. Many problems will still exist concerning labeling, pricing, etc., but the basic machinery for distribution of these standards is now available.

May I express my appreciation to my colleagues on the Technical Projects Committee, Dr. Francis Bird, Dr. Henry Perdue, Dr. Lloyd Matterson, Dr. Leo Friedman and also to the many collaborators and cooperating laboratories.

With this brief survey of the current program of the Technical Projects Committee, we will now consider the fat-soluble vitamins D, K, E and A.

• • •

Current Problems With . . .

The Vitamin D Bioassay

By Dr. Francis H. Bird
Eastern States Farmers Exchange, Inc.

Vitamin D concentrates purchased by us for use in poultry feeds are produced to our specifications. By agreement the potency of each lot of concentrate is established from the results of AOAC chick bioassays determined in three laboratories. The established potency determines the purchase price of the concentrate and the level used in the feed.

The problem with the vitamin D bioassay is simply that of assigning a potency to a given lot of concentrate once the three bioassays have been made. The accompanying table shows there is little agreement between laboratories on the potency for any one lot of concentrate.

We are mentioning this problem to see if something should be done by the Technical Projects Committee of the ANRC. If the new chemical method will replace the AOAC chick bioassay in the near future, then probably nothing needs to be done. However, if the chick bioassay is to be retained, then the AOAC procedure needs more work.

Comparison of Vitamin D Assays Between Laboratories Made on Six Batches of Concentrates

Estimated potency*	Potency found* Lab. 1	Lab. 2	Lab. 3	High/low
1,500	1,400	1,650	1,644	1.18
1,500	....	1,470	1,816	1.09
1,500	1,516	2,020	1,485	1.36
2,000	1,430	1,540	1,485	1.08
2,000	1,930	2,210	2,910	1.46
2,000	2,472	2,430	3,630	1.50

*1x10⁶ I.C.U. vitamin D per gm.

Ralston Purina Co. Fellowship Awards Applications Open

ST. LOUIS—Ralston Purina Co. Research Fellowship Awards program for 1961-62 has been announced. Under the program 10 outstanding agriculture college students will receive the increased stipend of $2,000 to assist in their graduate work, according to Ralston Purina.

Selection of the 10 winning students will be made by a committee of five composed of representatives from the Poultry Science Assn., American Veterinary Medical Assn., American Dairy Science Assn., American Society of Animal Production and American Association of Land Grant Colleges and State Universities.

Three of the fellowships will be awarded in poultry husbandry, three in animal husbandry, three in dairy husbandry and one in veterinary science.

Application blanks, which must be postmarked not later than Feb. 28, 1961, are being sent to agriculture colleges by the firm and are also available from: Ralston Purina Research Awards Committee, c/o Mr. J. D. Sykes, Ralston Purina Co., St. Louis 2, Mo.

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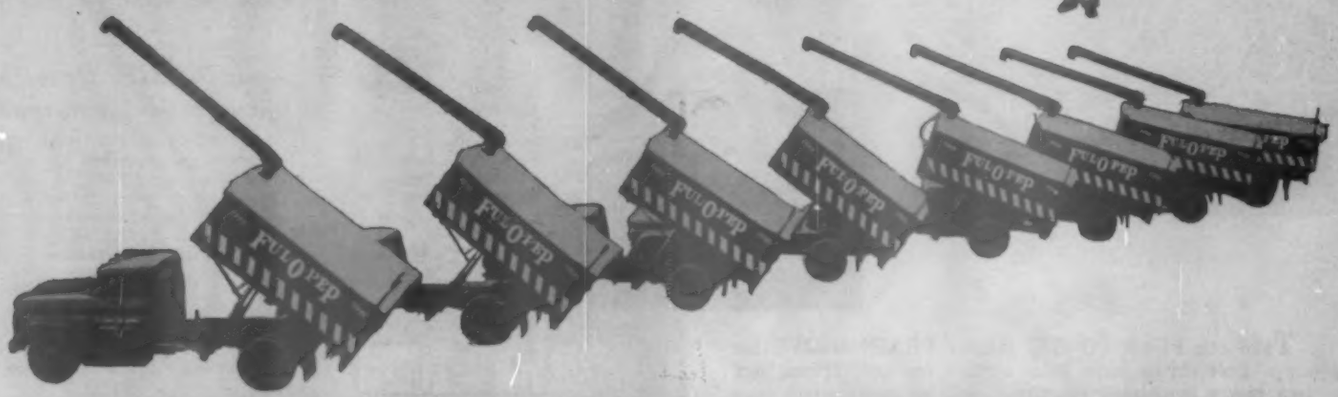

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Survey Finds Hatcherymen Expanding Activities in Related Businesses

KANSAS CITY—Hatcherymen are becoming involved to an increasing extent in diversified activities akin to the poultry business, with the largest number, 45%, engaged in either retail or wholesale egg marketing operations.

This was revealed in returns on questionnaires for the 1961 Who's Who in the Hatchery World, according to American Hatchery News, publication of the American Poultry & Hatchery Federation.

Percentages of the 3,000 APHF members engaged in other diversified activities are: owning commercial egg flocks, 37%; selling bulk feed, 30%; mixing feed, 22%, and growing out broilers, 22%.

The percentage of hatcherymen in bulk feed sales appears highest in the midwestern egg producing area and the southern broiler region, although over half of the California hatcherymen reporting show bulk feed selling as part of their operations, the hatchery publication says.

The largest number of hatcherymen mixing feed is in the grain producing area of the midwest, with those in the southern states in a close second. Mixing feed is least prevalent in the northeastern and far western regions. The marketing of eggs at retail and wholesale is a common practice in the northeastern and far western areas. New York and New Jersey report 80% of the hatcheryman are engaged in selling eggs. The Midwest ranks third in egg marketing with about half of the hatcherymen selling at retail and wholesale. The percentage is smaller in the South because most of the hatcherymen work primarily with broilers.

Hatcherymen are frequently their own chick customers with 37% of the total owning commercial egg flocks. The area ratio is comparable to the number selling eggs at retail and wholesale.

Almost half of the hatcherymen in the leading broiler states grow out broilers. Sizable grow out operations are present in Arkansas, Georgia, Delaware and North Carolina with Mississippi, Alabama, Maine and Indiana not far behind.

New Mill Operation

MALTA, MONT.—Dick Vogt, manager, Phil-Co Feeds, Inc., here, announces that the firm's new mill is now in full operation. Workmen and millwrights recently completed installation and test runs.

Mr. Vogt stated that pelleting and rolling of grain for feed are the principal functions of the facility.

Georgia Feed Assn. Picks Bahama Island For 1961 Convention

ATLANTA, GA. — The Georgia Feed Assn. will hold its 1961 convention at the Grand Bahama Club on Grand Bahama Island, the association's board of directors announced.

Dates for the convention are July 14-18. A record turnout is expected and a special committee is in the process of selecting speakers who will be particularly worthy of this meeting and the anticipated large attendance, officials said.

A full program of entertainment is being planned to include an all day picnic on a nearby island, deep sea fishing, bone fishing, skin diving, an island golf tournament and other interesting and unusual recreation not normally enjoyed at regular convention hotels. Native music and dancers will provide special entertainment during the evenings.

Transportation to Grand Bahama will be provided by chartered plane service direct from Atlanta and possibly other Georgia cities. In addition, both ship and plane service will be available from Miami and West Palm Beach on regular scheduled runs at economical rates.

Grand Bahama Island is in the Atlantic off the coast from Palm Beach, Fla.

Dr. G. A. Donovan On Vermont Staff

BURLINGTON, VT. — Dr. Gerald A. Donovan has joined the faculty of the University of Vermont College of Agriculture to do research in poultry nutrition.

As a successor to Robert Smith, who resigned to accept another position, Dr. Donovan will have the rank of associate professor of poultry husbandry. In addition to his research activities, he will teach and give part-time service to extension work.

Dr. Donovan formerly was with the agricultural research center of Chas. Pfizer & Co., Inc. He holds a master's degree in poultry nutrition and biochemistry from the University of Connecticut and a doctorate from Iowa State University.

New Booklet Describes Growth of Cyanamid

NEW YORK—A new booklet, "This Is Cyanamid," describes the growth of the American Cyanamid Co. from a one-product company established in 1907 to a world-wide organization which now manufactures 6,000 products for four major markets: Medical, industrial, agricultural and consumer.

Copies of the booklet may be obtained by writing to American Cyanamid Co., Public Relations Division, 30 Rockefeller Plaza, New York 20, N.Y.

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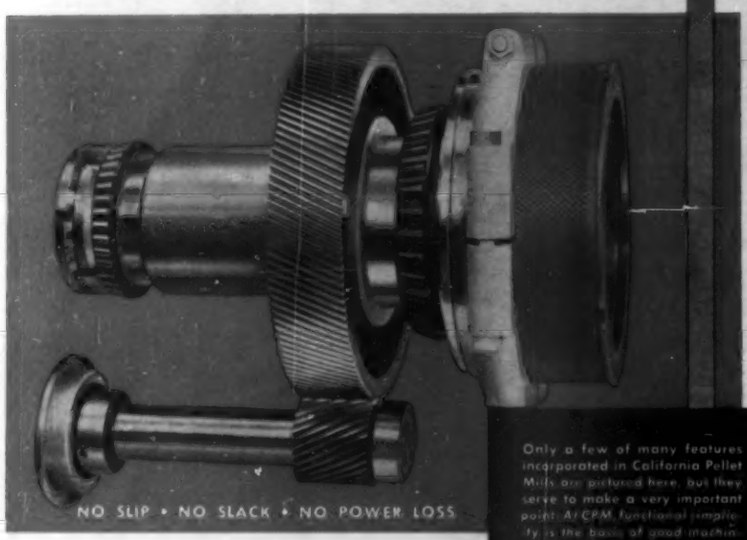
Only with CPM time-engineered features designed and built to do your pelleting job better, at lower cost



Only a few of many features incorporated in California Pellet Mills are pictured here, but they serve to make a very important point: At CPM, functional simplicity is the basis of good machinery design. Equipment is never just quickly added or changed simply to be "first" or different.

Direct Thrust Dies
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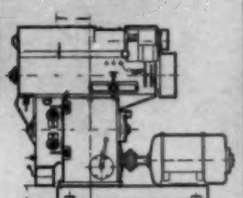

Compact, Space-Saving Design
Integrally mounted on welded steel base. Less vibration; more pellets per square foot of machine.

Precision-Quick Roll Adjustment
The accessibility, ease and speed of CPM die change or roll adjustment is the industry standard for comparison. Aids die life, too.

Take our FULL POWER GEAR TRAIN DRIVE for instance. Belt drives have been around for generations, but modern power machinery practice clearly endorses direct gear drive as the surest, long-lasting power transfer system. Why does CPM build pellet mills with solid gear train drive when others adopt one belt system or another? The answer: *Basic engineering experience dictates this better, more costly system, and CPM sales volume makes it practical.* Another example: CPM's careful matching of dies, motor size and gearing for specific pelleting jobs – not just "jumping horsepower" to claim higher pelleting output.

The guiding concept behind CPM engineering for every size pellet mill is simplicity and long service life. The result: Time saved for you; pellets at the lowest cost per ton; machinery that's young after years of use. Call your man from CPM today!

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Silage 'Mileage'

Stockmen raising both swine and cattle may get double "mileage" from their silage since it is practical to feed silage to bred sows and gilts, according to a University of Nebraska swine specialist.

He says that sows or gilts can make good use of either corn, sorghum or grass silage. However, it is doubtful if feeding silage to sows would be practical on most farms unless other livestock is also available to use the silage, he says.

He comments that it would require in excess of 100 brood sows to remove sufficient fresh silage from an ordinary size silo to assure fresh silage at all times.

When used for feeding swine, corn or grain sorghum silage should be supplemented with about 1½ lb. of good supplement daily, the specialist said. Grass silage should be supplemented with about 1 lb. of protein supplement and ½ lb. grain daily.

◆

Screwworm Infestation

Southern cattlemen have been warned to keep looking for and reporting destructive screwworms by a member of the Agricultural Research Service staff, U.S. Department of Agriculture, Jackson, Miss.

He said that with the cooperation of livestock owners and county agents with the screwworm eradication program and concentrated efforts of inspectors the spread of the infestation has been controlled to a greater degree this year.

He commented that in suspected cases, samples of the larvae and eggs should be placed in a container of water or alcohol and taken to a local county agent, veterinarian or livestock inspector for diagnosis. He said that if the specimens are found to be screwworms, arrangements will be made to spray the infested herd and other herds in the vicinity.

◆

Substituting for Hay

Dairymen in drouth stricken areas considering substituting grain feed for hay have been advised by a University of Nevada specialist to "know the feeding value of a feed as well as its comparative cost relative to hay prices."

He also advised dairymen to determine the substitution rates between grain and hay before making the decision to increase the ratio of grain to hay in dairy rations. He commented that the costs may vary largely according to demand situation, usually not reflecting a good measure of feeding value.

He says to figure substitution rates of grain for hay, the most accurate measure is to determine the net energy values of the feeds being compared. But, he warned that net energy values do not indicate the value of a feed as a source of protein, vitamins and other nutrients important in a dairy feed.

Normally, the most economical dairy ration includes liberal amounts or roughages. But when energy can be purchased more economically in the form of grain,then it is advisable to limit roughages and feed concentrates more liberally, according to the specialist.

He recommended 1½ lb. hay per 100 lb. of animal body weight as a minimum for dairy cows and 20-24 lb. grain per day per cow as approaching the upper limit.

A warning was issued stating that economical purchases of feed can easily be lost by failure to feed cows according to their milk production.

He said that substitution of grain for hay in dairy rations is not an easy job, but that it can be profitable under certain conditions.

◆

High Condemnations

Broiler growers should take precautions lest this winter's broiler condemnations go higher than last winter's nearly 4%, according to a Georgia extension poultryman.

The following recommendations were made:

Brooder temperature should be at 95° the first day and dropped 5° a week until chicks are about six weeks old. Room temperature should be kept at 65°. One coal or wood supplementary heater should be used for every two brooders, and the roof insulated with some economical material.

The poultry house should not be closed completely, but fresh air should enter just under the building plate so that it will be warm before reaching floor level. Drafts and heat loss should be prevented by closing cracks. Side walls can be covered with felt and windows covered with polyethylene plastic or some similar material. Houses should have raised ridge ventilators that can be closed against the wind.

Carry out a well-planned vaccination program like those recommended by the extension service and the Georgia Poultry Disease Research Center. Booster feeds should be used to reduce stress during vaccination reaction periods. The poultryman should know the vaccination history of parent flocks.

Sanitation measures should include removing litter after each brood, washing down walls with a power sprayer and disinfecting. Waterers should be cleaned and disinfected daily.

To prevent spreading diseases, separate houses into pens of 1,000-2,000 birds. Wear different shoes or disinfect shoes when traveling between poultry houses. Demand that everyone, particularly persons who visit other poultry farms, clean and disinfect footwear before entering the poultry house at any time.

◆

Slat Floors for Pigs

Several universities and swine producers are experimenting with raising pigs on slatted or wire mesh floors, according to reports from Pennsylvania State University.

These floors are used most commonly for growing and finishing swine, but there are swine producers raising all swine including the breeding herd on slatted floors, the university says.

These floors are a platform usually 2-3 ft. off the ground. Pigs trample the droppings through the floor to the ground below; thus pens need little cleaning.

Ways of handling accumulated manure from this type of operation vary. One enterprising producer has stocked the droppings area with earthworms and lets them digest the droppings with no further floor cleaning. Other producers use concrete floors and flush the droppings into pits and use a liquid manure handling system.

Although the limited experimentation allows few recommendations to be made, if the system proves successful there are several possible advantages. Labor cost would be lower since pens need little or no cleaning; pens are drier and there is increased possibility of reducing internal parasites.

One disadvantage is the cost of the floor system.

◆

Flock Planning Time

Two conditions that come up for frequent comment among poultrymen are present egg prices and the lack of planning ahead, according to West Virginia University poultrymen.

He says most poultrymen agree that it's next to impossible to predict the future price situation with any degree of accuracy and most poultrymen have learned by experience to operate on an efficient full-capacity basis each year. He says the "in and out" business will not pay off since most are in at the wrong time and out at the wrong time.

The university poultryman says that many poultry raisers have found themselves in need of extra housing space at this time of year. They purchased their chicks at the usual time last spring, but many of the new strains produce profitably up to 15 months and at housing time the older flock was still going full steam producing large profitable eggs.

"Proper timing of the new pullet flock and adequate housing are two points the poultryman must plan for," he said. "If your market demands a uniform supply of eggs the year around, then the only answer is adequate facilities for about three or four flocks per year, spaced three or four months apart. This will give a uniform supply of eggs of all sizes the year around."

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FIGURE 1

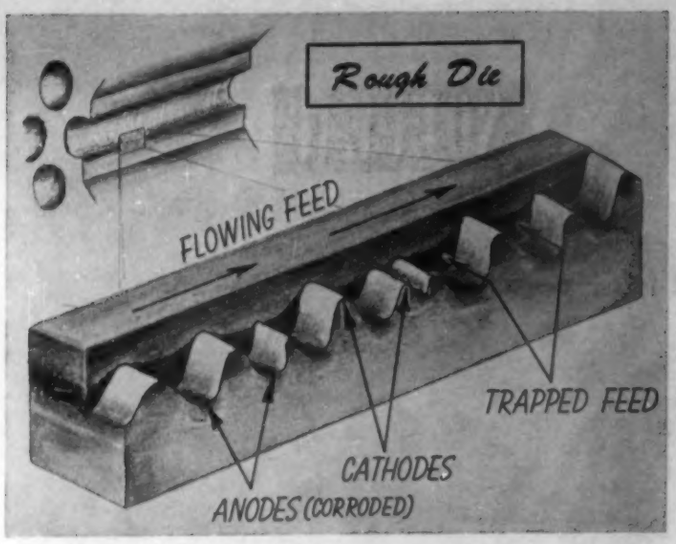
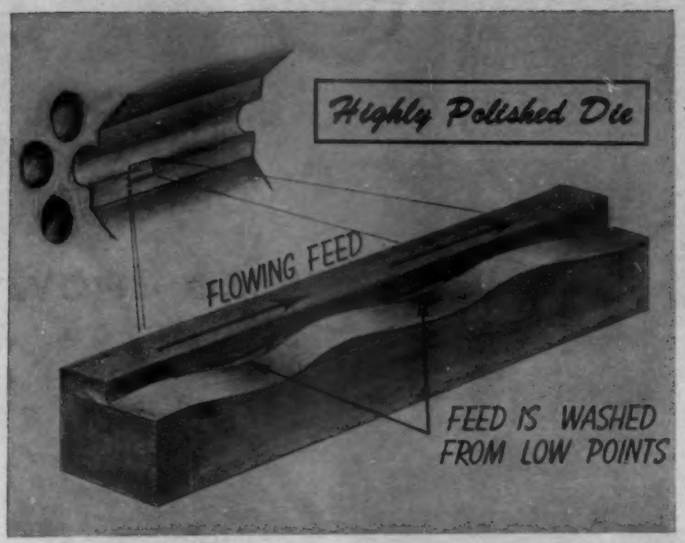


FIGURE 2



Part 2:

Extending Pellet Mill Die Life

"This study indicates that the surface finish of extrusion die holes is a very important factor in pelleting and that three types of improved die hole surface finish give longer life, higher production rates than standard polished dies."

By R. L. Patterson and A. J. Kathman
The Procter & Gamble Co.
Cincinnati

INTRODUCTION—Previous work based on pilot and production mill tests on high-energy, low-fiber broiler feeds was reported at the Feed Production School in 1959[1]. It led to three major conclusions:

(1) Surface finish of extrusion die holes is the most important single factor affecting pellet production rates and die life.

(2) The free fatty acid content of added fat is a factor in pelleting only when die hole surfaces are not smooth enough.

(3) The pitting corrosion which develops on standard dies is due to electro-chemical action in which an oxygen concentration cell is established at points of imperfection on the die hole surface. In the low spots on a rough die, the feed is trapped and becomes starved for oxygen forming the anode, where corrosion occurs (Figure 1).

It was demonstrated that improved die surface finish can be obtained by:

(1) Better abrasive polishes which minimize the effect of surface imperfections (Figure 2).

(2) A durable electroless nickel plating which forms a passive coating that effectively dampens the electrochemical action. As abrasion wears the coating from the high spots, the base metal becomes exposed and a cell is re-established. However, the current flow is between dissimilar metals with the more passive one being in the low points. Thus, the peaks become the anodes. As metal ions leave the anode under these conditions, the surface becomes smoother (Figure 3).

It was concluded further that dies made entirely of passive metal alloys should behave in a manner similar to the plated dies in preventing the electrochemical action.

A direct relationship was established between the performance of improved surface finishes under pilot conditions on a 30 h.p. California Master Model mill and in a production mill on a 75 h.p. Universal mill on used dies reclaimed after unacceptable performance in service.

Table 1 shows that in the production mill tests, a die which had produced only 775 tons at a rate of 114 bags per hour was given an improved polish after which it produced 318 tons at a rate of 125 bags per hour. A second die, after 503 tons at 98 bags per hour, was given the electroless nickel plating, after which it produced 837 tons at 115 bags per hour. A third die which had produced only 168 tons at 113 bags per hour was given the improved polish and then plated. It pelleted 1,623 tons at 137 bags per hour. This die was replated without pre-polish and had produced 936 tons at 114 bags per hour when tramp metal caused it to break.

The results of this work led to studies on the application of the improved finishing techniques to new dies in a production mill. These studies are the subject of this report.

TABLE 1. Reclamation of Used Dies

75 H.P. Production Mill
12/64-in. by 2-in. Dies

Initial life (tons)	Rate (100 lb. bags/hour)	Reclaiming treatment	New life (tons)	Rate (100 lb. bags/hour)
775	114	Improved Polish	318	125
503	98	Plated	837	115
168	113	Improved Polish and Plated	1623	137
		Replated	936*	114

*Tramp metal caused die to break.

TABLE 2. Surface Finish Effect on New Dies

75 H.P. Production Mill
12/64-in. by 1⅝-in Dies

Treatment	No. of dies	Life (tons)	Rate (100 lb. bags/hour)
Standard Polish ...	8	1253	105
Improved Polish ...	7	2664	129
Improved Polish and Plated	2	2596*	143

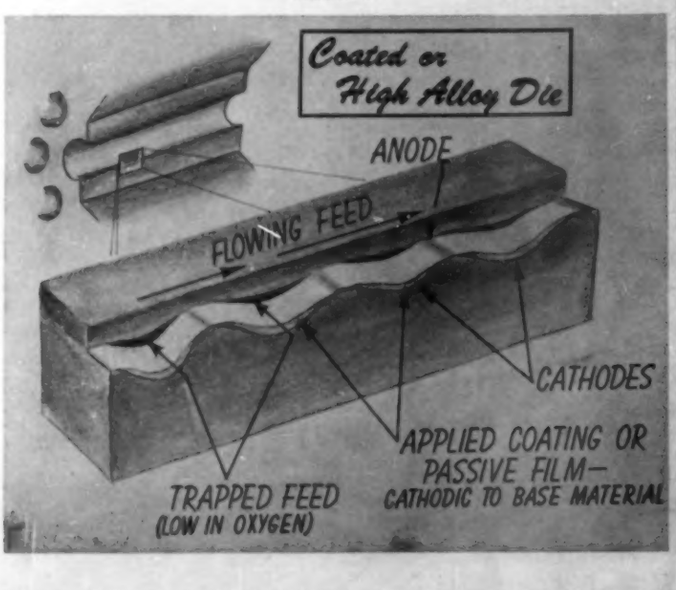
*One die only; second broke at 982 tons.

PRODUCTION MILL STUDIES—NEW DIES

Equipment and Procedure — The tests were conducted on a 75 h.p. Universal production mill. The die size was 12/64 in. by 1⅝ in. which is standard for the test mill. Power requirements ranged from 90 to 100 amperes with full load being 120 amperes.

Approximately 75% of the mash pelleted was a complete, high-energy, corn-soybean oil meal broiler

FIGURE 3



EDITOR'S NOTE: *Results of previous Procter & Gamble work based on pilot and production pellet mill tests and reported in the Oct. 17, 1959, issue of Feedstuffs led to further studies on the application of improved finishing techniques to new dies in a production mill. It is these later studies which are the subject of this article.*

R. L. Patterson has headed P&G's industrial research department since 1954. In this post he has directed product development and technical service work on fats for formula feeds, soaps and detergents. After graduating from the University of Kentucky in chemistry, serving as a naval officer and experiencing a year of industrial hardware sales, Mr. Patterson joined Procter & Gamble in 1945. For nine years he specialized in commercial development and technical service for soaps and synthetic detergents.

A. J. Kathman, who attended the University of Cincinnati, has been associated with P&G for 31 years, the past 20 years in the company's industrial research department. Since 1956, Mr. Kathman has been working on the technical aspects connected with the handling and use of fat in feeds.

Their article is from a paper presented at the 1960 Feed Production School in Kansas City.

R. L. Patterson

FIGURE 4. Half-size reproduction of 20 diameter photomacrograph showing pitting corrosion on die hole sections. Left, beginning state; right, more pronounced. Both dies were in service for short period only.

FIGURE 5. Half-size reproduction of 20 diameter photomacrograph showing smooth and rough die sections at the end of effective service life. Left, die given improved polish and electroless nickel plating after 2,600 tons production at 140 bags per hour; right, die given a standard polish after 1,400 tons production at 110 bags per hour.

feed. The total fat content was 5-6%, of which 2% was added. The free fatty acid content of the added fat was controlled at a fixed level during each test and ranged from 45 to 90% during the series of tests. The feed contained an average of 1,004 calories of productive energy per pound and 20.2% crude protein. The 25% non-broiler feeds pelleted consisted of high fiber beef and dairy feeds to which no fat was added.

The feed was mixed on a continuous line and conveyed by belt to a bin above the pellet mill. From there, it was fed by gravity to the conditioner where steam was added to raise the temperature to between 160° and 180°F. and the moisture from between 11 and 13% to between 15 and 17%. From the conditioner, the mash was fed into the pellet mill. The pellets continued by gravity to a vertical cooler, over shaker screens and/or crumbling rolls and then bagged, fed to bulk trucks or sent to storage bins. The fines were continuously fed back into the conditioner by bucket elevator.

Performance of Improved Surface Finishes—In order to determine if an improved abrasive polish and the electroless nickel plating, which were effective with reclaimed dies would give comparable results on new dies, several new dies were evaluated. They were chosen by the manufacturer to be of the same composition, were carburized and given identical heat treatments. One group was given a standard abrasive polish, a second group an improved polish and a third group a combination of the improved polish followed by plating. The plate was .004 in. thick and the die holes were reamed oversize to compensate for the plate thickness.

Table 2 shows that the eight dies given the standard polish produced an average of 1,253 tons at a rate of 105 bags per hour. The seven dies with the improved polish produced an average of 2,664 tons at a rate of 129 bags per hour. One of the two dies with improved polish and plate produced 2,596 tons and the other broke at 982 tons from the interference of tramp metal. The average rate with these dies was 143 bags per hour. With the plated dies, it was observed that no "break-in" period was required. Production rates were high from the start.

The pelleting rate on the plated die which produced 2,596 tons increased steadily throughout the life of the die. It started at about 132 bags per hour and was pelleting at between 165 and 170 bags per hour when stopped. The die was removed from service because it was producing soft, oversize pellets and not because of the more commonly observed low rates due to the roughness of hole surfaces.

Normally, pellet hardness varies inversely with production rate. However, with the plated dies, it was observed that more steam could be added to the conditioner. Thus, along with increased rates and extended life, pellet quality and hardness were maintained. This is not surprising, since harder pellets are associated with higher conditioning temperatures[2].

Effect of Die and Plate Hardness—Since the electroless nickel plating adds to the die cost, the possibility of counteracting the cost increase by the use of a softer, more readily machinable die material was investigated.

Dies used in the production of commercial broiler feeds have been found to vary in hardness from about 45 to 65 Rc, depending upon the hardening practice. In this test, two dies were made from the same piece of metal, which had a hardness of 43 Rc. One was carburized and heat treated to a surface hardness of 63 Rc and then given the electroless nickel plating. This was followed by a heat treatment at 375°F., which is normally applied to the plate, to produce a plate hardness of 55 Rc. The other die was not carburized, but was plated and then heated at 750°F. to produce a plate hardness of 70 Rc.

FIGURE 6. Set-up for Photographing Dies

Table 3 shows that the die with a hardness of 43 Rc and a plate hardness of 70 Rc had to be removed from service at 171 tons, with an average production rate of 89 bags per hour. The entrances to the die holes had "peened" over from smearing of the soft base material. The resulting reduction in hole diameter was responsible for the low rates. The plate remained intact except where smearing occurred beneath it.

The die with a hardness of 63 Rc and a plate hardness of 55 Rc broke from tramp metal after producing 647 tons. However, it had run at an average rate of 138 bags per hour. This indicates that the die surface should be at least as hard as the normally applied plate, i.e., approximately 55 Rc.

A pair of dies made by a second

TABLE 3. Die Surface and Plate Hardness Effect on New Dies

75 H.P. Production Mill
12/64-in. by 1¾-in Dies

—Hardness (Rc)— Surface	Plate	Life (tons)	Rate (100 lb. bags/hour)
43	70	171	89
63	55	647*	138

*Tramp metal caused die to break.

FIGURE 7

Half-size reproduction of 2½ diameter enlargement showing hole surfaces of a die at various stages of life. Left, when new, after an improved abrasive polish; center, after application of electroless nickel plating; right, after 1,000 tons' production.

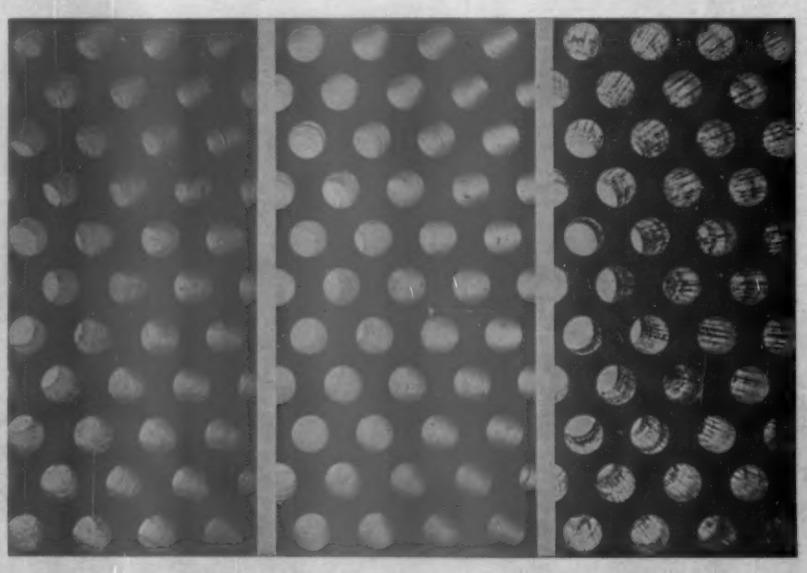
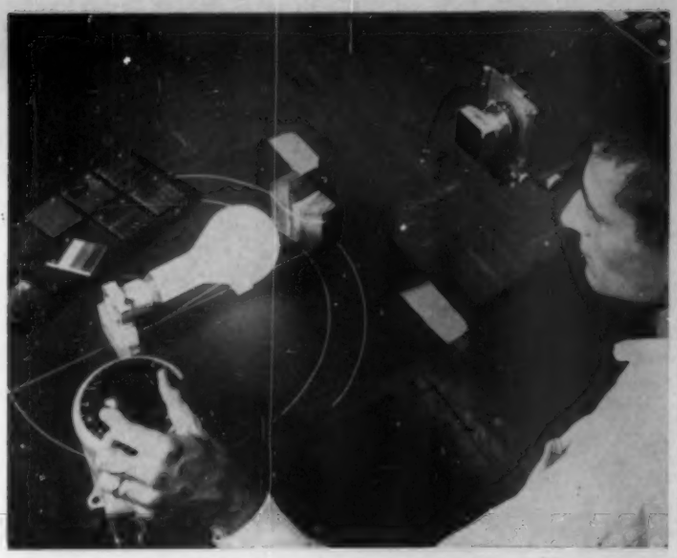


FIGURE 8. Set-up for Photographing Roughness Standards



manufacturer also was studied. The unplated die produced more than 4,000 tons, while the plated die had to be taken out of service after less than 1,300 tons. The plated die "peened" over at the entrances to the die holes, and had to be reamed twice during the test. Since this die had been tempered near 375°F., the temperature at which the plate is normally treated, it is apparent that the heat treatment had softened the die metal enough to permit smearing under the plate. This further established the importance of a sufficiently hard die material that is not affected by the normal plate heat treatment.

Effect of Thickness of Plated Dies—In this and previous work with plated dies, it was observed that in pelleting high energy broiler feeds, production rates remain high and the dies are finally removed from service because of soft, oversize pellets and not because of surface roughness and/or the low rates associated with standard dies.

Currently under investigation is the possibility of extending life further by increasing die thickness to the point where satisfactory pellet hardness might be maintained and more of the plate might be worn away by abrasion. Indications are that new dies plated over an improved abrasive finish need to be about ⅛ in. thicker than standard dies.

High Alloy Dies—A new high alloy die, now commercially available, is also under test. The results are showing clearly that, as expected, the use of a passive metal alloy effectively prevents the electrochemical action associated with standard polished dies and thereby substantially increases die life. High starting rates were obtained and are continuing.

PHOTOGRAPHIC TECHNIQUES—Photography lends itself well to documenting the findings of this work. Selected techniques have proven useful in studying the smoothness of die hole surfaces.

Die Hole Sections—Photomacrographs of sections of dies removed from service permit a careful study of surface contours in die holes. Figure 4 shows the surface of a die when the first signs of pitting corrosion are beginning to develop compared to a die where corrosion has become more pronounced. On the rougher die, it is observed that the pitting follows the tool marks across the face of the holes. Neither of these dies had been in service for any extended period. The photos were made at a magnification of 20 diameters (10 diameters in the negative and enlarged two times in printing).

Figure 5 compares the surface of a smooth and a rough die at the end of effective service life. These photos also were made at a magnification of 20 diameters. The smooth die had been plated over an improved abrasive polish and had produced 2,600 tons at an average rate of 140 bags per hour. Some pitting, which developed after the plate was worn off, can be observed on this die. Abrasion marks parallel to the direction of mash flow are also evident.

The rough die had been given a standard polish and had produced only 1,400 tons at an average rate of 110 bags per hour. The effects of electrochemical action are very apparent on this die. The deep pits are well defined and again follow the tool marks which are perpendicular to the direction of the mash flow.

These photomacrographs are made with a single, short focal length Bausch and Lomb 32 mm. Macro Tessar lens fitted to a standard 8 by 10 view camera with bellows extended 13.8 in. Illumination is by a 150-W incandescent spotlight, adjusted for semi-texture effect.

While photomacrography is helpful in studying die surfaces, the technique has an obvious limitation. It can be applied one time only, i.e., after the die has been sacrificed.

Pictorial History of Die Hole Smoothness—Photography can also be used for recording a pictorial history of die surface smoothness. By photographing the same die holes, it is possible to study the condition of the interior surfaces at various stages of life. Tool marks, rough areas and wear patterns not apparent to the naked eye are readily observed. The technique, as described in Appendix A, involves the use of controlled conditions of spacing and lighting for taking the photographs and for developing the prints (Figure 6).

Figure 7 shows the results of the application of this technique to a die with an improved abrasive polish before and after electroless nickel plating, and again after 1,000 tons production. Some fragments of the abrasive used in polishing are evident in the picture taken before plating. The cleaning treatment applied in preparing the surface for plating largely removed these.

The plating has essentially no effect on the surface smoothness of the holes. In the picture taken after 1,000 tons production, the straight lines parallel to mash flow are typical of wear under conditions existing in the test mill. The plating has been worn off the surface. Performance during the remainder of this die's life will be largely dependent upon the quality of the abrasive polish which was applied before plating.

This die is being used in die thickness studies and is 1⅝ in. thick compared to the regular 1¾ in. for standard dies in this mill. It is too thick for best performance as evidenced by the lip formed at the entrance to some of the holes from excessive roller pressure. Also, abrasive wear has enlarged the holes slightly and this, too, can be observed. The die will be ground down to a reduced thickness for the remainder of the test.

Comparison with Roughness Standards—A method for estimating die hole smoothness has been developed by comparing photographs of General Electric Standard Roughness Specimens' and die hole surfaces. The procedure (Appendix B) is a variation of the technique applied to dies. By shooting toward the light through steel cylinders opened on one side (Figure 8), a picture resembling die holes with flat sides is obtained.

By comparing photographs of hole surfaces and standards, an Average Roughness Value (ARV) can be determined. The ARV is the average deviation in microinches (mmi.) from a center line on a profile contour of the surface. While specimens are available covering the ARV range 4 to 2,000 mmi., it is apparent that finished die hole surfaces are generally well below 250 mmi.

Figure 9 shows the effect of abrasive polishing on representative holes from dies typical of those used in these studies. Before any polish is applied, i.e., after drilling and reaming, the ARV is between 250 and 500 mmi. A standard abrasive polish reduces the ARV to between 125 and 250 mmi. The improved surfaces vary from the 63+ mmi. range down to as low as 8 to 16 mmi. on selected holes. ARV 4 mmi. is not shown because the surface behaves like a mirror and produces a reflection of the inside of the covering cylinder. Even at 8 mmi., there is a tendency for reflections to develop.

The smoothness of holes in a single die varies rather widely; for example, from below 63 to more than 125 mmi. on an improved polished die.

A panel of three judges is used to select the average or representative holes from the die area photographed. Recently, a number of dies have been observed with representative holes having ARV's in the 32 to 63 mmi. range. Only a few have been found below 32 mmi. As experience is gained in the application of this technique, a basis for the development of smoothness limits seems likely to be established.

DISCUSSION OF IMPROVED FINISHES—Each of the three types of improved hole surface finish is effective in minimuzing or preventing the pitting corrosion which develops from electrochemical action in the pelleting of high-energy, low-fiber broiler feeds. A review of their other performance characteristics and costs may be of help to those interested in commercially exploiting their potential.

Improved Abrasive Polish—The improved abrasive polish is now available at no added cost on all dies produced by the manufacturer who developed it, but not on a mass production basis. It is applied to dies made of standard metals.

Assuming a die cost of $375 and applying this cost to the test results, it is noted that the standard polish gave 1,253 tons production for a die cost per ton of 30¢. The dies with the improved abrasive polish produced 2,664 tons at a cost per ton of 14¢. In addition, the average production rate increased 23% from 105 to 129 bags per hour.

Another manufacturer's improved abrasive polish also has been found to give comparable increased rates and life. This polish requires extra time and handling in application. Within the last year, it has become available commercially at a premium cost over standard polish.

The ability of improved polished dies to withstand electrochemical attack is found to be directly related to hole surface smoothness. The Average Roughness Value should be as low as possible, and not in excess of about 63 microinches. Improved polishing techniques increase production rates and extend die life at the lowest initial die cost and might be expected to give the lowest cost per ton of feed produced in most mills.

Electroless Nickel Plating—The electroless nickel plating is applied directly to dies made of standard metals and extends life at least as much as improved polishing techniques. It offers the advantage of increased rates with no break-in period and allows more steam to be added to the conditioning mash, thereby permitting at least normal pellet hardness to be maintained.

Since the plating is still being applied on an experimental or developmental basis, it is difficult to predict its cost on a commercial volume basis. Plating has added 40 to 50% to the initial cost of test dies. In addition to the reduction in cost which could be realized from volume application, savings in shipping and handling charges could be achieved if

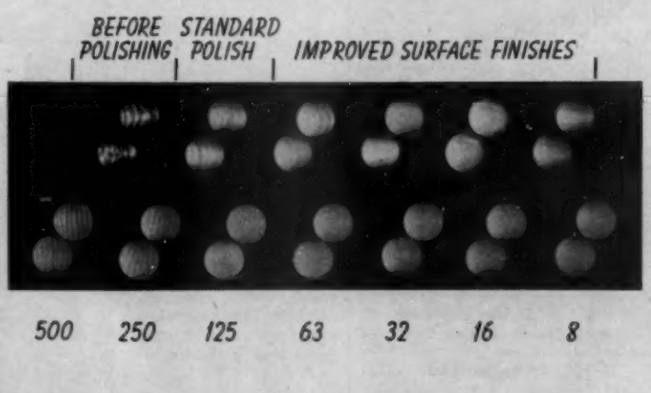


FIGURE 9
Half-size Reproduction

PHOTOGRAPHS COMPARING DIE HOLE SURFACE ROUGHNESS TO STANDARDS

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die manufacturers were to become licensed to apply the plating themselves.

Based on the assumed die cost of $375 plus $180 additional for plating .004 in. thick and a life of 2,596 tons, the die cost per ton is 21¢, as compared with 30¢ for the standard polish and 14¢ for the improved polish. These calculations give no credit to the increased production rate of 143 bags per hour, which represents an increase of 36% over the standard polish (105 bags per hour) and 11% over the improved polish (129 bags per hour). The value of such a rate increase will vary from mill to mill, depending upon capacity and production requirements. In some mills, the additional cost could undoubtedly be justified on increased rates alone.

The plating can be used for reclaiming old dies and for imparting a durable finish to new dies. It provides the additional flexibility of a hard surface which performs well with abrasive feeds.

Best performance is obtained by having a sufficiently smooth surface beneath the plating. Average Roughness Values of 32 to 63 microinches have performed very well under the plating. Experience with the plating on steel equipment other than dies indicates that surfaces can be so smooth that the plate will not bond well. Thus, ARV's well below 32 mmi. might possibly lead to bonding problems.

Additional investigation in connection with the electroless nickel plating is indicated along the following lines:

(a) A determination of optimum plate thickness considering both performance and cost factors. Over a sufficiently smooth base, the plating may need only be thick enough to assure high starting and continuing production rates.

(b) The effect on performance and cost of hardening the plate on a sufficiently hard die. Hardened plating might better resist abrasive action.

(c) The optimum degree of surface polish under the plate. The smoothest surface to which the plate will adhere effectively would appear to be the objective.

(d) The possibility of replating dies economically. The greater mechanical wear obtained at the entrance end of the holes appears to be a limiting factor to repeated platings, but the performance obtained with reclaimed dies in previous work suggests that at least one replating may have attractive possibilities.

High Alloy Dies—The newly developed high alloy die costs about 50% more than a standard die. It produces high starting rates without a break-in period and gives indications of long life. High alloy dies tested by others in mills producing essentially straight high energy broiler feeds have shown increases in life which considerably more than offset the added die cost[4].

It appears that the high alloy die may offer superior performance in the pelleting of high-energy, low-fiber rations. However, at this time, it is available for only one make of pellet mill. It also is softer than normal dies which means that it cannot be recommended for high-fiber abrasive feeds[4].

SUMMARY AND CONCLUSIONS—Production mill studies of the effect of die surface finish on die life and production rates in the pelleting of high-energy, low-fiber broiler feeds leads to the following conclusions:

A. Previous findings that the surface finish of extrusion die holes is the most important factor affecting pellet production rates and die life have been substantiated.

B. Three types of improved die hole surface finish — improved abrasive polish, electroless nickel plate and high alloys—give longer die life and higher production rates than standard polished dies. Each has specific advantages which indicate that commercial application possibilities are real:

(1) Improved abrasive polishes on standard die metals offer the lowest initial die cost, but in order to avoid electrochemical action and to give rapid starting rates, they must be capable of imparting extremely smooth finishes.

(2) Electroless nickel plating actively resists electrochemical action, at least until the plating is worn away, provides rapid starting rates, is hard enough to resist wear with abrasive feeds, does not require as high a polish on the surface beneath as unplated dies made from standard metals and might increase initial cost by 40 to 50%.

(3) High metal alloy dies actively resist electrochemical action as long as they remain in service, provide rapid starting rates, are softer and therefore more readily machinable, but less effective on abrasive feeds than improved abrasive polishes or plating. They increase initial cost approximately 50%.

C. Photographic techniques effectively illustrate the findings of this study:

(1) Hole surface sections of sacrificed dies can be studied for contour and wear patterns by means of photomacrography.

(2) Pictorial history of surface smoothness at various stages of die life can be recorded by a newly developed technique which is described (Appendix A).

(3) Die hole surface smoothness can be evaluated by comparison with standards to arrive at Average Roughness Values. The standards are photographed by a modification of the technique used for dies (Appendix B).

It is beyond the scope of this study to determine more than qualitatively

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the relative merits of each of the improved surface finish types in comparison to the others. It seems probable that production mill conditions vary widely enough that all three will find application in commercial practice.

ACKNOWLEDGEMENTS—A number of individuals and companies have cooperated in helping to make this study possible. We wish to acknowledge especially:

D. Foster, Procter & Gamble metallurgical department, for his invaluable assistance in the planning of the tests and selection of dies for testing.

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C. B. Grant, C. B. Grant Machine & Mfg. Co., Grand Junction, Colo., who developed one of the improved abrasive polishing techniques evaluated and who cooperated in making the experimental dies for use with the electroless nickel plating.

Kanigen Division, General American Transportation Co., Chicago, who plated the test dies with Kanigen, the trademark for the company's patented nickel alloy electroless plating.

Sprout, Waldron & Co., who supplied the high alloy die (their trademark S-1) for evaluation.

California Pellet Mill Co., who developed the other improved abrasive polishing technique.

Appendix A

PHOTOGRAPHING DIE HOLES

Orienting Die for Photographing:

The die is laid on its side with the flat side on the bottom and the bolt holes or lug slots on top. A section of the die, starting at the end of the serial number and covering a 6-in. area along the outside circumference and across the outside face of the die is prepared for photographing. Feed in the die is drilled or punched out. Dust is removed with a stream of air under pressure. On new or reworked dies, the holes are cleaned with chlorethane or other suitable solvent using pipe cleaners to remove oil and grease. Dust is removed by air. The center hole is marked for focusing so that the same holes can be compared during subsequent inspection.

Equipment:

Linhoff 4 by 5 Techniko camera, 127 mm. focal length, f4.7 Zenar lens; Quick-set Husky tripod; No. 303, 500W photo enlarging lamp; 115 volt, 60 cycle Powerstat; Sekonic Brockway light meter with photosphere; Bessler 4 by 5 enlarger with Lektra Laboratories' PTM-4 Densi-Timer exposure control.

Procedure:

Set-up—The camera is set and locked to record an actual size image on the negative. Focusing is done by moving the camera forward or backward. The No. 303 enlarging bulb is centered behind the field of view with two inches clearance between the bulb and the inside face of the die. The camera axis should be in perfect alignment with the axis of the center hole in the desired field of view. Once the camera position for best focus is determined, the distance from the center of the field of the die to a point on the camera lens or shutter assembly should be measured and recorded for future use. (Figure No. 7.)

Exposure—The light intensity is adjusted by use of the Powerstat, to provide a "slide-out" reading of 125 ft. candles at the center of the field. A one-second exposure at an aperture setting of f45 is made on Eastman 4 by 5 Panatomic X film, with the room in semi-darkness. The film is processed for low contrast (9 minutes at 68° F.) in D-76 developer.

Printing—In printing, 2½ diameter prints are made from the negative with the 4 by 5 Bessler enlarger. A Densi-Timer setting of 1 (coarse) and 4 (fine) is used to time the exposure on Eastman Polycontrast paper using the No. 2 contrast filter. The Densi-Timer probe should read from the hole in the center of the negative. Two exposures are made; one overall, and one to "burn-in" an elliptical area in the center of the picture. This area should be expanded from about 3½ in. to 8 in. in length as the second (burning-in) exposure progresses. Slight variations in exposure time and burning-in will be found necessary for each negative. A standard die photo is used as a quality guide. Print development should be 1½ minutes in Dektol developer diluted two parts water to one part developer stock solution.

Appendix B

PHOTOGRAPHING ROUGHNESS STANDARDS

Orienting Standards for Photographing:

Simulated die holes with flat Roughness Standards* serving as sides of the holes are photographed in a manner similar to the procedure for photographing die holes (Appendix A). Two steel tubes 1¾ in. in length with ¼ in. inside diameter are used. The tubes are milled off along the length so that when placed side by side with the open walls across the Roughness Standards the distance between Standard and opposite side of each tube is 12/64 in., a typical die hole diameter for broiler pellets. Where more than one polishing technique is used to obtain a given Roughness Standard, the finish chosen for

*General Electric Standard Roughness Specimens, Meter and Instrument Department, West Lynn, Mass.

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comparison is the one which most closely resembles die surface in photographs.

Equipment:

Linhoff 4 by 5 Technika camera, 127 mm. focal length, f4.7 Zenar lens; Quick-set Husky tripod; No. 303, 500W photo enlarging lamp; 115 volt, 60 cycle Powerstat; Bessler 4 by 5 enlarger with Lektra Laboratories' PTM-4 Densi-Timer exposure control.

Procedure:

Set-up—Circles representing the inside and outside circumferences of a typical die are drawn on black paper stock. The camera is set and locked the previously determined optimum distance from the outside circumference line (Appendix A). The Roughness Standard with metal tube sections attached by plastic tape is placed between blocks of wood so that the midpoint between the tube centers is in line with a center die hole 1 to 1½ in. from the center of the field of view on the outside circumference (Figure 8). This is in the aren where maximum surface and best definition are observed on dies. The enlarging bulb is centered behind the field of view two inches from the inside circumference line. Direct rays from the bulb to the lens are shaded off with a piece of black card stock.

Exposure—A one-second exposure at an aperture setting of f45 is made on Eastman 4 by 5 Panatomic X film, with the room in semi-darkness. Variations in smoothness affect the light intensity required for each standard. Exposures are bracketed by use of the Powerstat to obtain a printable negative with contrast and definition comparable to die hole photographs.

Printing—In printing, 2½ diameter prints are made from the negative with the 4 by 5 Bessler enlarger using Eastman Polycontrast paper with the No. 2 contrast filter. Variations in exposure time will be required for each negative. Print development should be 1½ minutes in Dektol developer diluted two parts water to one part developer stock solution.

v v

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NEW MEXICO EXPANSION

ROSWELL, N.M.—The D. W. McGee Co., producer of liquid feed for cattle and sheep here, has announced plans to extend operations to another part of the state. C. D. Chester, company official, said the firm has leased a plant site in Socorro, N.M., and will build a blending station and storage and distribution facilities there within a year.

22 Nutrena Dealers Attend Feed School

ELK RIVER, MINN.—A week-long look at new developments in animal agriculture was staged at the Cargill-Nutrena research farm here for 22 Nutrena dealer representatives.

Highlights of the beef-swine school session—latest in a series of regularly scheduled dealer training meets—were inspection tours of various swine housing installations including the "Pigloo" system, beef cattle barns, and various turkey, poultry and egg producing houses.

Henry R. Patton, Nutrena sales training director, briefed the group on new feed formulas, animal handling systems and Nutrena's prescription calculator, a portable device which enables stockmen to compute gain and cost of production from a wide range of feeding programs.

Dr. Francis Wingert, Cargill-Nutrena swine specialist, said the farm originated more than 100 separate projects last year.

The 22 dealers also toured Cargill's central research laboratory and administrative office near Wayzata, and Nutrena general offices and electronic computation quarters in Minneapolis.

Members of the group included Chris Patent, Randolph (Neb.) Hatchery; R. A. Lundeen, Minden (Neb.) Hatchery; Dean Gaeth, Gaeth Hatchery, Schuyler, Neb.; Ernest Huppert, Deiss & Nugent, Ellsworth, Wis.; Howard Jacobson, Darlington (Wis.) Milling Co.; Kenneth Shaw, Valley Feed, Spring Valley, Minn.; Gerhardt Vanderohe, Caledonia Implement, LaCrescent, Minn.; Ronald E. Trotter, Holder Elevator, Columbus, Ind.; Paul Anderson, Anderson's Feed, Waukon, Iowa; Bill Henderson, Henderson Feed, Wrights, Ill., and Beryl Becker, Houghton Elevators, LaMoille, Ill.

Others who attended the session were Glenn Shaver, Meriden Farmers Cooperative, Mendota, Ill.; J. W. Ritenour, Preston (Iowa) Hatchery; W. A. Kemp, Palmyra (Ill.) Feed Store; Edward Kuiper, Canton (S.D.) Produce; Paul Wieck, Wieck's Feed, Dysart, Iowa; V. E. Johnson, Kewanee (Ill.) Produce; G. V. Gamble, Farmer's Feed, Florala, Ala.; Wayne Bickham, Sam P. Wallingford, Wichita, Kansas; Bob Paull, Paull's Hatchery, Berryville, Ark.; Carthel Gay, Smith-Vaughan, Searcy, Ark., and Darrell Mathis, Iron City (Ga.) Milling.

Leases Poultry Plant

WATER VALLEY, MISS. — Dixie Poultry has leased the poultry processing plant in Water Valley from the Yalobusha County Board of Supervisors. Operations are due to begin in January with ultimate employment of approximately 125 anticipated in the plant itself. Others will be employed in trucking operations and the production of broilers for the plant.

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NEIDLINGER ELEVATOR CO.—Buildings pictured here house the Neidlinger Elevator Co., Holcomb, Ill., a firm that uses mill signs for better customer communications.

Well-Lettered Mill Signs Mean Extra Sales for Illinois Firm

By Al P. Nelson
Feedstuffs Special Writer

Many a custom mill owner uses direct mail, newspaper, radio and other types of advertising, but often overlooks another and inexpensive medium—well-lettered signs in and about the feed mill premises.

Orland R. Neidlinger, owner of Neidlinger Elevator Co., Holcomb, Ill., is a feed and grain merchandiser who realizes the value of signs. He has about 25 signs in the feed store and mill, each of which carries a sales, service or educational message. Customers like to read these signs, and the copy is regularly responsible for a number of extra sales, reports Mr. Neidlinger.

The signs are made right at the mill. Mr. Neidlinger uses heavy black crayon for writing copy on the cardboards, none of which is more than 12 in. square. The firm does a large hog feed business, using Master Mix formulas, and these are advertised on clearly written signs posted in the store. The formulas for pig starter, grower and finisher feeds as well as sow feed and cattle feed are also posted on cardboard signs on both of the firm's two mixers (a Prater and a Kelly Duplex).

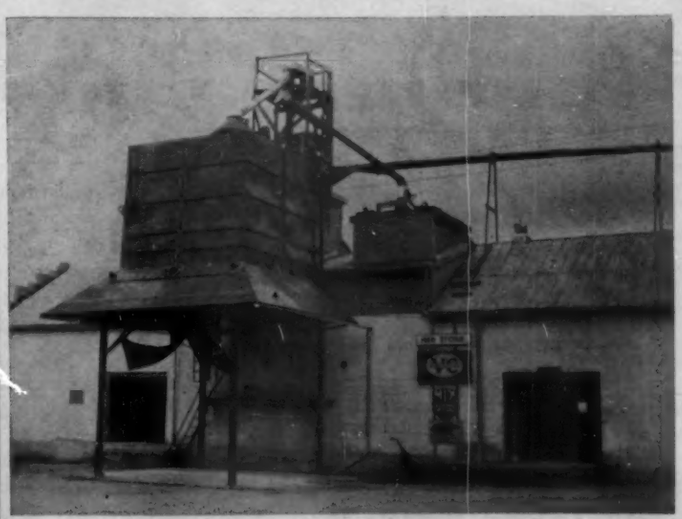
John Ewald, mill manager, says that many farmers like to come into the mixing department and talk about the posted formulas while waiting for their feed to be processed. "They'll study the formulas, discuss the proportions of the ingredients, etc.," says Mr. Ewald. "Often, if a farmer doesn't know exactly what formulas he wants, I can use the signs to point out to him the formulas most farmers in the area are using with good results. Posting of these signs stimulates discussion of good feeding."

Farmers like to inspect this modern custom mill and even look into the electric control room. When they do, they see two signs, one of which reads: "Master Mix Grain Bank Feed, Every Bite is Right." This gives an indication how Mr. Neidlinger and staff neglect no opportunity to use signs to inform customers and visitors of the various feed services and policies of the firm.

Story Telling Signs

Practically every piece of equipment is designated by a neatly lettered sign. The grain spouts that lead down from storage bins, etc., have informational signs taped on them. The oat huller and roller has a fine sign which informs customers of the custom rates, etc.

In other words, the average custom mix customer who likes to roam about the mill while his feed is being processed, becomes more interested in the milling process by reading these signs. Thus he knows more about the



LOADOUT AREA—Loadout area and 40-ton capacity bin pictured here play an important role in feed business at the Neidlinger Elevator Co. Bin, divided into four 10-ton sections, holds finished pig starter, complete grower, and pig fattener, while the fourth is kept vacant for seasonal feed storage.

CUSTOMERS KNOW THE SCORE—Line of signs pictured here informs customers about feed formulas that are gaining wide acceptance in Holcomb, Ill. area, says Orland R. Neidlinger, manager-owner of the Neidlinger Elevator Co.

Neidlinger mill and its operation and available service.

"Customers tell us they read these signs," states Mr. Neidlinger, "so we think the effort of putting them up is worthwhile."

A couple of the mill signs also pertain to employees. On the elevator leg controls, employees see a sign which reads: "Did you clean up grain on floor? Do so before stopping the elevator leg."

In the feed salesroom, the bulletin board contains another Neidlinger sign. This one details the firm's grinding and mixing charges and prices charged for other services including delivery and bulk feed discounts.

Equipment in the mill, in addition to the two mixers already mentioned, includes a 75 h.p. Prater hammermill; a Bender hoist; a Burrows weigh buggy; a Triumph corn sheller; a Prater molasses blender; a Behlen grain drier, and a Cyclone blower for blowing grain into box cars. The scale is a 50-ton capacity Howe.

There are two dump pits in the drive—one for receiving grist for grinding and grain for bank storage and the other for receiving grain which goes into elevator storage.

The loadout area also has four square steel bins, each holding 10-tons. One contains finished pig starter, one complete grower, and the third, pig fattener. The fourth bin is kept as a spare for seasonal feed storage.

Inside the mill are four steel concentrate bins, with 5 ton capacity each. At present, one bin holds sow concentrate, another pig concentrate, and another calorized egg concentrate, reports Mr. Ewald. Most concentrates and complete feeds come in by truck.

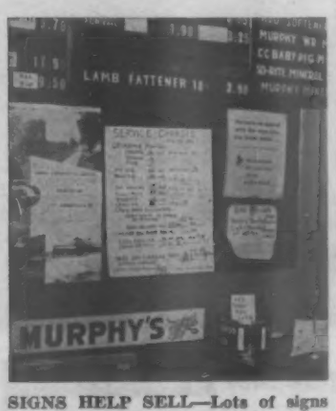
A large portion of the feed produced at this mill is delivered in bulk or is called for by farmers. The Neidlinger firm has an auger box on a truck used for bulk delivery. This truck will hold 3 tons of feed, an amount many poultrymen take at one delivery. Many hog raisers call for bulk feed, reports Mr. Ewald.

EDUCATED MIXER—Mixer pictured here carries story-telling signs about popular formula feeds at the Neidlinger Elevator Co. in Holcomb, Ill. John Ewald, mill foreman, is pictured dumping concentrates into weigh buggy.

The Challenger oat roller and huller is often in operation, for the firm uses a large amount of oats in its big hog feed production. A special spouting arrangement on the oat huller permits delivery of rolled oats as bulk into a truck, or to be bagged off another spout.

The Neidlinger firm also operates a grain bank plan which enables the mill to serve customers more efficiently. Through the plan many customers have grain in storage at the Neidlinger elevator to be used as needed.

While feed, grain, seed, fertilizer and farm supplies account for the largest share of the firm's volume, New Idea farm equipment is also sold as are power mowers and hog feeders. Mr. Neidlinger has a small bargain shed, so labeled, and in it he puts merchandise odds and ends. Farmers like to visit this shed each time they come to the Neidlinger elevator, and usually they find needed, discounted merchandise here.



SIGNS HELP SELL—Lots of signs mean lots of business for the Neidlinger Elevator Co. at Holcomb, Ill. Note service charge sign posted on bulletin board. Firm uses at least 25 signs throughout store and mill.

Board Resignation

SPRINGFIELD, ORE.—A letter of resignation from Bill Rogers, member of the Oregon Fryer Commission, was submitted to Gov. Mark Hatfield.

Mr. Rogers, who was the commission's first chairman, was elected mayor of Springfield in the November election and is resigning, he explained, because he could not serve in both capacities and "do a good job."

He stated that although he would not be a member of the commission, he would not be "too far removed from its interests." In addition to serving as sales manager of the Willis Small Feed Co., Eugene, Mr. Rogers also raises 120,000 broilers annually.

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California Group Says Integration Bad for Farmers

SAN FRANCISCO—A majority of the agricultural section of the Commonwealth Club of California feels that vertical integration of the food business is good for processors, retailers and the general public, but bad for farmers. A survey of the club indicated, however, that farmers are beginning to feel improved technology in production requires some improvement in marketing. The report also showed that two thirds to three fourths of the major feed companies are in integrated programs of one kind or another.

The section's report on the "pros and cons" of vertical integration seemed to show that it is favored by those who feel that "the farm is no longer a way of life, but has become big business," and opposed by those who feel that "the whole system of the family farm—a system we have always considered basic to our country's strength—is in jeopardy."

The report said that vertical integration is most highly developed in the poultry field, where it began with the extension of easy credit by feed companies. Ninety per cent of the nation's broiler production comes from integrated programs, 20% of the eggs, and 50% of the turkeys.

Retired turkey grower R. R. Killian, an opponent of integration, said that the independent turkey grower has practically disappeared from California.

Two thirds of the major feed manufacturers and packers have some program of integration in hog production under way, although only 10% of the nation's hogs are produced under integrated programs now.

Ten to 20% of all cattle slaughtered are produced under contract for future delivery, or under custom feeding arrangements. The dairy and fruit and vegetable industries are highly integrated.

The section felt that vertical integration in the food business lessened the farmer's risk and provided a more stable market, but reduced his income. A majority felt that it had little effect on overproduction, or else aggravated it. It felt that integration would lead to fewer and larger farms, with control passing from farmers to processors and distributors.

Mr. Killian argued for "cooperative integration" rather than common ownership or contractual arrangements. He conceded that integration could lead to savings as feed companies dispensed with salesmen and processors dropped buyers, but added, "it is not necessary to destroy the independence of the farmer to attain this efficiency." He charged that the farmer "ends up becoming a tool of the processors or suppliers."

James Hanley, Jr., a rice grower and dealer, said that vertical integration of the food business was inevitable. "It is good business, sound in its main concept and long overdue," he said.

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New Hampshire Firm Announces Earnings, Observes Anniversary

BOW, N.H. — The Merrimack Farmers Exchange, Inc., which operates a large feed mill in Bow, and 22 grain and farm supply stores throughout New Hampshire, recently celebrated its 40th anniversary, and announced earnings for 1960.

Over 400 farmers attended the program held in Bow. Reports for 1960 disclosed that the company sold grain and farm supplies amounting to $8,152,381, with a profit after taxes of $47,594. The retained earnings account was raised to a total of $334,062, from which the exchange paid dividends totaling $45,515 and life insurance premiums totaling $1,194. The surplus balance was reported to be $287,352.

The Exchange owns property valued at $1,800,496 and owes $712,393. Stockholders' equity is listed at $800,750 in stock and $287,352 in profits left in the business.

Promoted at Burrus

DALLAS—The election of Robert P. Crofford to the position of vice president of Burrus Mills, Inc., has been announced by Jack P. Burrus, president.

Simultaneously, Mr. Crofford was appointed general sales manager for national bulk and consumer products. Mr. Crofford was formerly sales manager for consumer products. His new duties include supervision of bakery flour and millfeed sales in addition to consumer products.

NEW MOBILE MILL

CONDON, ORE.—Inland Chemical Co., here, announces the purchase of a new portable feed grinder. With this machine, the firm plans to provide on-farm service of feed grinding and mixing. The Oregon Extension Service has encouraged expansion of livestock feeding in the Columbia basin counties for several years. Company officials said that the firm produces a surplus of feed grains and a surplus of feeder cattle and that these two resources should be combined on Columbia basin farms.

National Officer Says 10,000 Raise 90% Of Country's Turkeys

NEWBERRY, S.C. — It is quite likely that the 1959 agricultural census will show that approximately 90% of the turkey crop was raised by 8,000 to 10,000 farm operators, Lee Walts, assistant executive secretary of the National Turkey Federation, told poultrymen attending the annual meeting of the South Carolina Turkey Federation here.

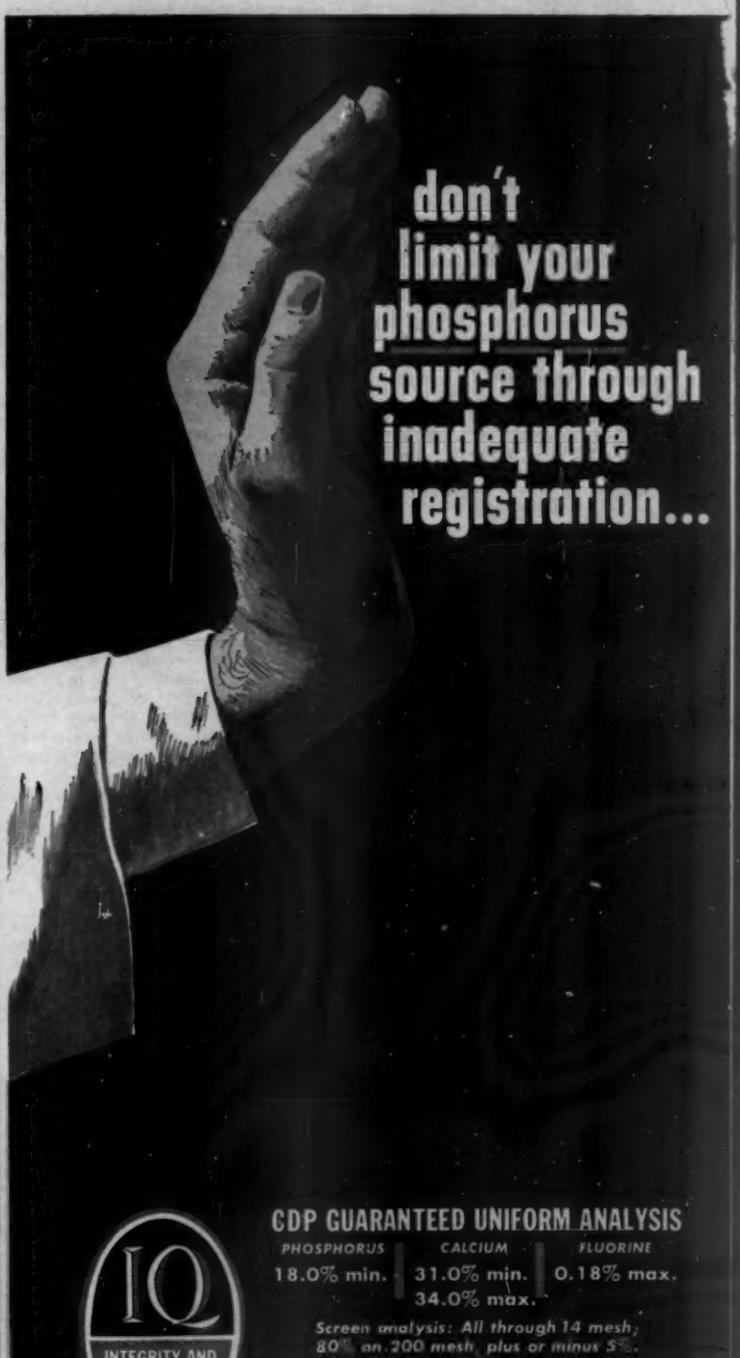
He pointed out that the 1959 count of 82 million birds is almost a 100% increase over the 44 million turkeys raised in 1954.

Mr. Walts noted that "obviously a tremendous shift in turkey production to the Midwest has been occurring in the past five years. At the same time, turkey production has become more specialized and the indications are there will be around 100,000 turkey growers when the final census count is received later this year, as compared with 176,000 in 1954. However, only about 10% of these growers account for 90% of the birds.

Territorial Change

HAZARDVILLE, CONN.—John H. Nay, sales manager, Pilch's Poultry Breeding Farms, Inc., announced a territorial change for the sales and service division of the Pilch organization.

Richard Nutter, New England representative, has been transferred to Richmond, Va., where he will serve the mid-east and west central area. Mr. Nutter's service area will include Ohio, Virginia and Indiana to the Delmarva Peninsula.



Minnesota Reports On Tests Studying SBOM in Hog Rations

ST. PAUL, MINN.—"Research has shown that rations based on corn and soybean oil meal and complete in other nutrients are seldom improved by replacing a part of the soybean oil meal protein with protein from another source," says Dr. R. J. Meade, department of animal husbandry at the University of Minnesota, in a recent research report.

Dr. Meade reports that replacing part of the soybean oil meal with tankage, fish meal or whey failed to improve either the rate or efficiency of gain in Minnesota tests.

"Soybean meal has also given excellent results when used as the only supplemental protein in barley rations," he says. "In one test, weanling pigs fed 14% protein pelleted barley rations throughout the growing-finishing period gained as rapidly and as efficiently when soybean oil meal was the only supplemental protein as they did when blood meal, tankage or fish meal supplied supplemental protein."

In studies at the branch stations in Minnesota, soybean oil meal was used as the only supplemental protein to see if level of dietary protein influenced rate and efficiency of gain and carcass quality.

"Results from an experiment at the north central station show excellent results from the use of corn-soybean oil meal rations when they contain adequate protein for the weight group of pigs being fed," according to the article. These results are representative of those obtained in branch station experiments in Minnesota.

In three experiments at the west central station, pigs fed corn-soybean oil meal type rations containing 15% protein from weaning to 100 lb. and 12% thereafter have gained as rapidly and as efficiently as those fed rations containing 18 and 15% protein during the same periods.

In an experiment at the Grand Rapids station, the protein supplemental portion of the rations was supplied by soybean oil meal alone, a 2 to 1 mixture of soybean oil meal and meat and bone scraps, or a 2 to 1 mixture of soybean oil meal and fish meal.

All rations had adequate minerals and vitamins. As in other tests, replacing part of the soybean oil meal with protein of either animal or marine origin did not improve pig performance within the levels of protein studied, according to Dr. Meade.

These rations contained approximately 16% protein until the pigs average 100 lb., then 13% protein until the pigs reached market weight.

Paymaster Farms Adopts Direct Delivery

SAN ANGELO, TEXAS — The Paymaster Farms recently abandoned its bulk receiving feed station, and is now having feed delivered directly from the Paymaster Feed Mill in Abilene, Texas.

The firm, which went into the broiler business about a year ago, is currently feeding a quarter of a million birds. Under the former plan, feed was shipped 90 miles by rail, unloaded into storage bins, and then re-loaded into feed trucks for farm delivery.

"We decided to streamline the operation and save those extra moves," said Marvin R. Posey, farm manager. "Now we simply write or telephone orders to the mill, where a driver loads a truck and drives directly to the poultry farm. Whereas feed was sometimes handled four times, it is now handled only twice—loading at the mill and unloading at the farm."

The company is now using large trailer trucks, with an average capacity of 17,000 lb. of feed. Some of the smaller trucks have been converted to utility service.

Paymaster farms has streamlined feed handling at the poultry houses. Each one of the new houses now has two 7-ton steel bins to hold feed. One holds a medicated finisher and the other a non-medicated feed. When the change-over is made, the feed left in the first bin need not be removed in order to fill with the second ration.

U.S. Fish Meal, Scrap Production Off

WASHINGTON—The U.S. Department of Agriculture reports that U.S. production of fish meal and scrap during September, 1960, totaled 36,000 tons—a 6% decline compared with the same month in 1959.

The September figure brings the total fish meal and scrap production figure to 216,000 tons for the first nine months of 1960—15,000 tons below the same period in 1959, states the USDA.

FARM CENTER STARTED

SAN ANGELO, TEXAS — A new farm center, which includes a farm store, grain mill, elevator and truck stop, is being constructed south of here by the Palmer Feed & Supply Co. To open Jan. 1, the new business will have 3,600 sq. ft. of floor space. It will house a farm store, grinding and milling equipment and a display room for feed and home appliances. Owned by R. B. Harrell and W. L. Palmer, the new business will also feature four grain elevators with a 5 million bushel capacity. A 60-ft., 80-ton public scale will be located in front of the truck service station.

Kansas State Wins Poultry Judging Title

CHICAGO—Kansas State University won first, Oklahoma State University second and the University of Arkansas third in all-around judging at the 37th annual inter-collegiate poultry judging contest here Nov. 29-30, in which students from 15 colleges and universities participated.

Coached by Ray Morrison, the Kansas State University team scored 3,993 points of a possible 4,500 for all-around judging in breed selection, market products and egg production. Team members, all from Kansas, are Gerald Havenstein, Manhattan; Wayne Bacon, Topeka; Minor Chappell, Manhattan, and George Isle (alternate), Fredonia.

Oklahoma State University gained 3,921 points for its second place finish and the University of Arkansas scored 3,900 points in finishing third.

Serving on the committee for contest arrangements were Norman R. Clizer, Allied Mills, committee chairman; Dr. E. E. Schnetzler, De Kalb Agricultural Assn., contest chairman; Oscar A. Day, Wilson & Co.; Lloyd H. Geil, Poultry and Egg National Board; E. D. Griffin, Allied Mills; C. L. Haines, Swift & Co.; Dale Shillington, Swift & Co., and Frank Wolfney, Institute of American Poultry Industries. Herbert L. Alp, American Farm Bureau Federation, was master of ceremonies at the annual awards banquet.

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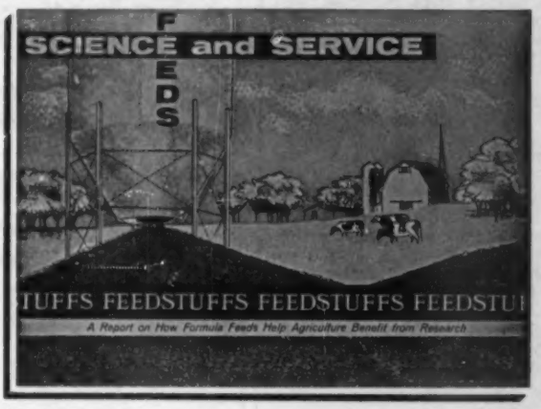
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Georgia's Egg Industry, Future Growth Discussed at Egg School

TIFTON, GA. — "Georgia's commercial egg industry is healthy, thriving and capable of steady growth," said Dr. J. Clyde Driggers, department of poultry husbandry at the University of Georgia, "and we can be optimistic about the egg situation in this state."

Dr. Driggers, speaking at the annual Egg Short Course held at Abraham Baldwin College in Tifton, cautioned Georgia producers against counting on indefinite continuation of present high prices, however. He explained that, in the last half of 1961, prices are likely to move back toward the 1959 levels—but they aren't expected to drop to the extreme lows recorded that year.

"In contrast to broiler production (Georgia leads the nation in this field)," said Dr. Driggers, "egg production in the state is only a little more than enough to meet the needs of our own population. As a result, Georgia's egg production has very little influence in the national price picture.

"From a long-range viewpoint, Georgia's egg production is healthy and it can be increased gradually during the next four or five years without influencing egg prices to the extreme. Too rapid expansion in Georgia or nationally could result in lower than cost of production prices again."

Dr. Driggers explained that some rapid improvement must be made in the state's laying flocks, too. "While the 1959 production per bird was 205 eggs, and near the national average of 206, it was too far behind Florida's 216 eggs per layer.

"Probably there will be an increase in integrated operations in the future. We will have more birds in the state but fewer total producers."

Dr. Driggers predicted that by 1970, at least 30% of the eggs produced in Georgia will come from some type of integrated operation. He also listed four ways that small producers can build volume, or compete with big operations. These systems include integration, contracts, cooperatives or corporations.

"It means that to stay in business, the egg producer must be efficient in breeding, feeding and management of his laying flock. This isn't a get-rich-quick business, but it is a satisfying one that promises satisfactory returns," he said.

Looking into the next six months, Dr. Driggers pointed out that the supplies of stored eggs, dried eggs and frozen eggs are low in the nation, and that the producers would have about 5 to 6% fewer hens on hand in January. Because of a smaller number of hens and pullets, probably fewer eggs will be laid during the first half of 1961 than in the previous year, so that egg prices will not go down so low in the spring.

Dr. Driggers also mentioned the trend toward lower egg consumption in the nation. He said the annual per capita consumption was 402 eggs in 1950, and now this is down to 325 eggs per person. "More advertising and promotion on eggs, a nearly perfect food, might help reverse this trend," he concluded.

R. A. Gayvert, extension economist of Athens, monitored a panel discussion on egg grading and quality control. The panelists included George Seaton, Atlanta, state department of agriculture; Perry McCranie, Brookfield, an egg producer; James I. Skinner, Atlanta, USDA federal-state grader, and Sidney Miller, producer, Irwinton, Ga., and president of the Georgia Egg Assn.

These men agreed that candling is the best method of examining eggs, but said mechanical graders can be used satisfactorily. The panelists agreed generally that housewives have learned much about looking for quality eggs, but they also pointed out that there is still a wide variation in consumer desires.

John N. McDuffie, state department of agriculture official, said producers generally are adhering to the state regulations concerning disposal of dead birds.

The three recommended methods, according to Mr. McDuffie, include: (1) Use of an incinerator, (2) ditch disposal (place dead hens in a ditch and cover with layers of soil) and (3) pit disposal (six feet deep with covered surface located away from wells and water supplies.)

Dr. Kenneth May, professor of poultry husbandry at the University of Georgia, listed ways to dispose of cracked eggs, under-grades, small size eggs, and blood spots.

He said that about 45% of the eggs laid qualify as Grade A. Normally, most flocks produce 6% under-grades, cracks, and blood spots (these do not include small eggs).

Dr. May said blood spots usually come from a rupture of a blood vessel in the ovary or possibly along the oviduct, and that this is an inherited characteristic. He said about 2½% of the eggs will have blood spots. These eggs are commonly fed to hogs, dogs or sold to a rendering plant.

"Small eggs offer a real merchandising challenge," declared Dr. May. He said some merchants have marketed them "piggy-back style" by placing a small pack of small eggs on top of a package of large eggs.

"Cracked eggs sometimes run as high as 6%," Dr. May said. "Some of this trouble can be avoided by exercising greatest care in gathering, and not filling baskets too full, and by keeping machinery adjusted." He said, "Eggs should also be gathered often."

At the University of Georgia, a good trade was built up in cracked eggs, which are usually sold at a lower price than perfect eggs. The eggs can either be broken and sold in bulk to bakeries, or they can be frozen.

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Poultry Feed Ingredient Movement Studied

BROOKINGS, S.D.—Findings of a study which point out the methods used and charges incurred in the transportation of poultry feed ingredients from the north central states to "competing regions" have been reported by South Dakota State College in cooperation with the agricultural experiment stations of Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, and Wisconsin and the U.S. Department of Agriculture.

William H. Thompson, professor of transportation, Iowa State University, principally responsible for the opinions and conclusions expressed in the report, says the study should be useful to poultry producers and processors in the north central states, to grain producers and processors and to transportation agencies and regulatory bodies.

"As more efficient methods of transportation are utilized," he says, "costs usually decline; and lowered costs of feed in the competing poultry producing areas mean more intensive price competition on dressed poultry between these areas and the north central states which originate the feed ingredients . . .

"Whether or not some markets will decline and others expand will depend partially upon the transportation factors and costs involved in moving feed grains on one hand, the finished product on the other . . .

"The study is sufficiently detailed to suggest certain trends. The ever-present problem of the regulated vs. non-regulated carrier on grain movements is apparent. Expansion of grain traffic by water carrier is a development worth noting. The possible need of a complete revision of the grain rate structure of the railroads may bear further study. These are but a few of the issues suggested by the data in this report."

Three Regions Selected

Prof. Thompson explains that three important commercial broiler producing regions were selected for analysis of corn and soybean oil meal shipments from the north central states. These were the Arkansas-Missouri region; southeast region, including Alabama, Georgia and North Carolina, and the Delmarva region.

Field research was initiated in Arkansas and Missouri in 1957. In 1958, the research was continued in southeastern states and in Delmarva.

"The criteria for selection," Prof. Thompson says, "was based upon the transportation of broilers from these areas into north central markets and into other common markets in competition with north central poultry."

Application of Findings

North Central Regional Publication No. 109 (Bulletin 485, May, 1960), "Transportation of Poultry Feed Ingredients from the North Central States," lists the following applications of findings for poultry processors, for grain marketing agencies and producers and for transportation and regulatory agencies:

A. For Processors

1. The increase in broiler production in southeastern states since 1953 greatly exceeds the increase nationally. Increases in the other areas tended to be less than the national average.

2. Relatively low transportation charges, induced primarily by water carrier competition, appear to be a factor in the rapid expansion of broiler production in southeastern states.

3. Lower transportation charges on poultry feed ingredients shipped from the north central states is probably an important reason why producers in the major broiler areas can compete intensively in the markets of the north central states.

4. Relatively low transportation charges on poultry feed ingredients are probably not the only production cost advantage of the rapidly expanding broiler industry in southeastern states.

5. Whereas water carriers show the lowest transportation charges of all three agencies utilized in the feed ingredient movements, they are not well adapted to the rapid movement of perishable products, such as dressed poultry.

B. For Grain Marketing Agencies And Producers

1. The broiler producing regions studied in this report are important markets for corn and soybean oil meal produced in surplus in the north central region. These feed ingredients comprise 80% of the modern broiler ration.

2. Shifts in the production of broilers within and between these regions will require reevaluation of transportation services and charges for shipments of the poultry feed ingredients from the north central states.

3. Corn and soybean oil meal are transported from north central origins to milling and/or destination points by railroad, motor carrier and barge.

4. Bulk transportation facilities encourage the milling of the ingredients into feed at concentration points near destinations. This is particularly true where water transportation is used.

5. The heaviest volumes of corn were shipped during the first half of the year into southeastern states; during the second and third quarters into Arkansas and Missouri; and during the last half of the year into the Delmarva region.

6. Soybean oil meal shipments were heaviest during the second and third quarters into the South and Southeast and were uniform throughout the year into the Delmarva region.

C. For Transportation and Regulatory Agencies

1. Rail transport was used primarily on shipments from North Central origins to North Carolina and the Delmarva region.

2. Trucks and barge movements, or a combination of the two, were the most common transportation arrangements for the shipments into southern and southeastern states.

3. Rail transport was more important for the movement of soybean oil meal than for corn.

4. Except for the railroads, few common carriers were used on the movements of the commodities.

5. Where data were available for comparison, water carrier charges were found to be less than half of those of motor or rail carriers.

6. The variety of motor carriers used and the absence of published data on their movements makes difficult, if not impossible, an accurate analysis of the transportation problems involved on these shipments.

7. The traditional railroad arrangements and charges for the movement of grain are tending to break down under the impact of the exempt motor and water carriers.

8. A tendency toward a breakdown of traditional railroad arrangements and charges will have serious repercussions upon markets, milling centers and transit points.

9. The rising importance of water carriers is reflected in the expansion of river ports as concentration points for the feed ingredients and distribution points for the feed.

10. Transportation requirements for the commodities will tend to vary according to the seasonality of production and seasonality of demand.

Prof. Thompson notes that the study suggests certain areas in which further research might be undertaken. These are:

1. The influence of transportation charges, facilities and services on the development of feed processing at concentration points in consuming areas.

2. A more comprehensive analysis of the use of exempt carriers on these movements and their impact upon the railroad rate structure.

3. The effects of transportation on the competitive interregional aspects of the poultry industry through an appraisal of the broiler movements into the north central states from competing production areas. Work is

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$1 MILLION PER DAY

CHICAGO—Dog owners will spend nearly $1 million per day during 1961 on food for their pets, according to estimates of the Ken-L-Ration Division, The Quaker Oats Co.

in progress on this phase of the research project.

Assistance in planning the study, collecting data and reporting the findings was given by L. N. Conyers and Robert Byrne, transportation branch, Farmers Cooperative Service; Dr. Richard Phillips, professor of agricultural economics, and Theda Ballantyne, research associate, Iowa State University; William Kohlmeyer, South Dakota State College; Dr. William Mortensen, University of Wisconsin, and Leonard Voss, University of Missouri.

Prof. Thompson said 220 feed manufacturers in the three regions studied furnished data.

Maryland Broiler Production Hits Record 100-Million

COLLEGE PARK, MD.—The number of broilers produced in Maryland will exceed, for the first time, 100 million in 1960, according to Dr. Harold Smith, University of Maryland, department of agricultural economics.

In Maryland, chick placements for broiler production will exceed the 1959 level by 12%. Corresponding changes in placements for the Delmarva Peninsula indicate an increase of 11%, and for 22 commercial areas an increase of 5%.

The 1960 Maryland placement figure will be about 110 million and will exceed Delaware's placements for the second year in a row. Since 1955, Maryland has increased its broiler production 60% as compared to 58% for the nation as a whole.

There are some favorable factors, Dr. Smith says, which indicate the state will likely continue to increase its broiler business. The state is located close to large eastern markets and as a result, enjoys a 2¢ lb. transportation advantage compared to some of the southernmost areas.

It is a substantial industry with large investments, equipment and production resources. Farmers in the area receive about 1¢ lb. more for broilers sold at the farm than producers in the southern areas of Georgia and Alabama. This has been a better year for the industry than in 1959, and production is expected to increase in Maryland in 1961.

LIQUID FEED PLANT

SANTA FE, N.M.—The D. W. McGee Co. of Roswell, producer of liquid feed for cattle and sheep, will open a storage and distribution plant in Socorro, according to company officials.

Nitrates May Cause Vitamin Deficiency, Study Indicates

COLUMBIA, MO. — Cattle and sheep receiving feed containing high levels of nitrate will likely develop a serious deficiency of vitamin A when their only source of this vitamin is carotene found in forage, according to Dr. George Garner, University of Missouri agricultural chemist.

One explanation which has been proposed is the higher levels of nitrites and nitrates in plants now due to higher nitrogen fertilization of soils.

Early studies at the university showed that nitrites are more closely related to the problem of vitamin A and E deficiencies than are nitrates. Nitrites are formed from nitrates by fermentation in the rumen of either cattle or sheep.

In a recent study, rats which received nitrites as a part of their ration developed vitamin A deficiency much faster than did the control group not receiving nitrites, Dr. Garner reports.

Even when fed a vitamin A supplement, rats getting nitrites failed to store any vitamin A in the liver. These rats also started showing vitamin E deficiency in spite of ample amounts in the ration.

This means the livestock producer may want to use a supplement containing both vitamin A and E in cases where nitrate toxicity is suspected, Dr. Garner says.

Missouri researchers are continuing their study with both rats and ruminant animals to determine more exactly what happens when livestock are fed high nitrate feeds.

Poultry Group Urges Inspector Checking

MACON, GA.—The poultry division of the Georgia Farm Bureau Federation at its annual convention in Macon called for the development of a system or procedure to check qualifications of poultry inspectors.

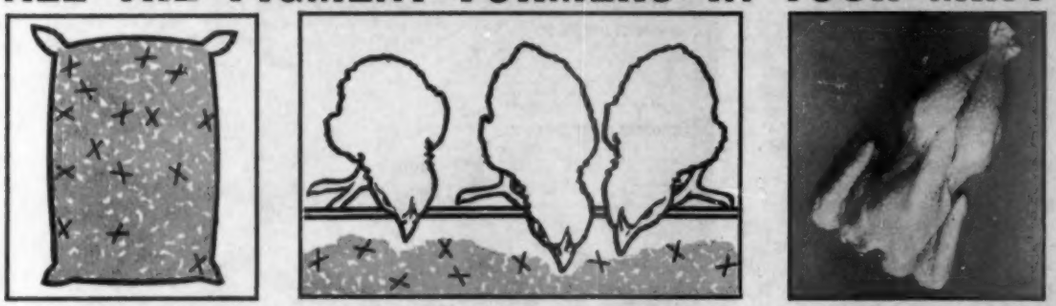
The division also recommended that inspectors receive proper training to insure efficiency in the jobs.

The recommendation was one of several adopted, including adjustment of insurance rates on layer houses, and the use of more broilers in school lunch room programs.

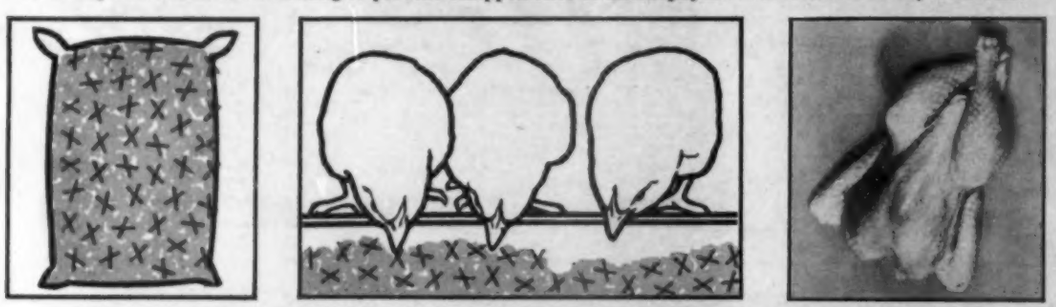
Feedlot Incorporation

PHOENIX, ARIZ.—Gila Feed Yards, Inc., with principal office to be here, has filed articles of incorporation, listing $9 million authorized capitalization "to engage in the cattle business; to breed, raise, buy and sell and conduct feeding operations, including, but not limited to pen, pasture, and custom feeding." Incorporators are W. H. Brophy, president, and D. M. Martin, both of Phoenix. The operation at Gila Bend was listed as now owned by Mr. Brophy, according to Nov. 29 ownership transfers.

ARE YOU SURE YOUR FEED ANTIOXIDANT GUARDS ALL THE PIGMENT FORMERS IN YOUR MIX?



Ordinary antioxidant does nothing to prevent disappearance of xanthophylls . . . needed for healthy flesh color



Santoquin protects pigment formers . . . keeps them in the feed and . . . puts them in the poultry

ONLY SANTOQUIN® SAFEGUARDS THE COLOR FORMERS IN YOUR FEED . . . TO GUARANTEE YELLOWER SKIN AND BRIGHTER EGG YOLKS

Now you can stop "wondering where the yellow went." With Santoquin in your feed, chemically "fragile" xanthophylls *stay put* . . . from mixing to metabolism. You'll get brighter egg yolks, healthier-looking skin color . . . for more sales at top prices. Your Monsanto man can show you comparative color photos clearly showing the pigmentation improvement that Santoquin guarantees. Or, better, conduct your own controlled feeding test . . . with and without Santoquin.

Just ¼ pound per ton does the job. Ask for Santoquin in your dehydrated alfalfa, premixes or in your concentrates. We'll be happy to send you *all* the facts. *Mail the coupon today.*

SANTOQUIN SAFEGUARDS like no other poultry feed antioxidant can

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Prevents rancidity in feed	Yes	Yes
Protects vitamin A through digestion and metabolism	No	Yes
Preserves carotenes	No	Yes
Improves pigmentation by guarding xanthophylls	No	Yes
Acts in the bird like vitamin E to prevent diseases	No	Yes

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- ☐ "Question and Answer" brochure on Santoquin
- ☐ Names of premixers supplying Santoquin
- ☐ Research reports

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Company _____
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Swift & Co. Installs Feed Mill Facilities At Research Farm

CHICAGO—Feed milling facilities have been installed at Swift & Co.'s livestock, poultry and feed research farm located near Frankfort, Ill., southwest of Chicago.

"It is expected that the newly-installed equipment will facilitate manufacture of experimental formulas, and permit accurate control over their composition," say company officials. "In addition, the facilities will permit greater variety of types of feeds to be tested."

The installation at the 160-acre research farm is a stationary Daffin "packaged feed mill." It consists of a combination of units for chopping hay or other roughage, grinding grain, mixing molasses, and blending any or all of these items with concentrates or premixes to produce a complete feed.

The facilities provide for the manufacture of all types of swine and poultry feeds, and also for the manufacture of cattle feeds containing large amounts of hay or other roughage.

The mill is in a newly-constructed prefabricated type building. A number of tanks also have been installed for the bulk handling of grain and other ingredients used in large quantity.

The farm has been operated since 1957. Emphasis is on developing new and improved feed formulas, feeding practices and programs, and the study of various breeds and strains of poultry.

FEED MILL—This "packaged feed mill" was installed recently at Swift & Co.'s livestock, poultry and feed research farm near Frankfort, Ill. Here, W. R. Smith, plant manager, observes a conveyor in operation.

EXTERIOR—The outside of Swift & Co.'s new feed mill is shown above. The mill is housed in this newly-constructed prefabricated type building. The mill will employ bulk handling of grain and other ingredients used in large quantities. The facilities will be used to manufacture experimental formulas, and will permit testing of a greater variety of types of feeds.

WESTERN OFFICERS—Wearing their new association-sanctioned red coats, officers of the Western Grain & Feed Association of Iowa posed for this picture following election during the organization's annual convention in Des Moines. They are, left to right: B. C. Swanson, Swanson Elevator, New Sharon, president; Glenn Swartzendruber, Wieston Grain Co., Manson, vice president; C. D. Whitaker, Swift & Co., Des Moines, treasurer; Bob Skinner, renamed executive secretary, and Ken Ludlow, reappointed assistant secretary. About 80 members have official red coats which they wear at association functions.

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Blood Spots

How? See Feedstuffs June 25, Pg. 14, for report on use of Stabilized Hetrogen K in cutting incidence of blood spots. Or write **Heterochemical Corp., 111 E. Hawthorne Ave., Valley Stream, N.Y.**

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UNIQUE CHEMI STRUCTU ...NEW TYPE OF ANTICOCCI ACTIVITY

*TRADEMARK OF MERCK & CO., INC. FOR ITS BRAND OF AMPROLIUM © 1960, MERCK & CO., INC.

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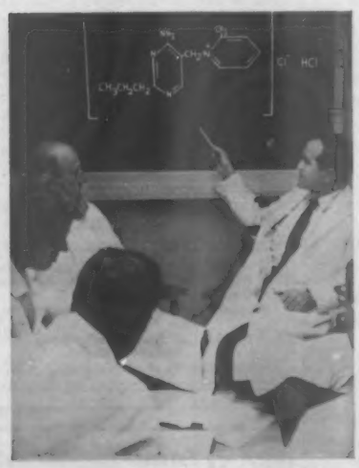


NOW...FROM THE LEADER IN COCCIDIOSIS RESEARCH

Carefully selected from a massive screening program involving thousands of compounds, AMPROL combines a highly desirable balance of efficacy and safety. It shows promise of being a truly effective coccidiostat for use in broiler feeds. This latest addition to the Merck family of coccidiostats is really new and has undergone intensive study and testing, using the most advanced methods. It is the first coccidiostat evaluated against seven species of chicken coccidia.

UNIQUE ANTICOCCIDIAL ACTION

The chemical structure of AMPROL differs completely from that of any other coccidiostat—it is similar to that of thiamine. At recommended use levels, AMPROL appears to interfere with the thiamine metabolism of the coccidia, but does not affect the normal thiamine metabolism of the chicken. This mode of action is entirely different from that of any other coccidiostat in the industry's history.

SIGNIFICANT COMMERCIAL ADVANTAGES

The value of AMPROL can be measured by its efficacy and its favorable margin of safety . . . plus the fact that it permits attractive weight gains and feed conversions. What's more important, tests to date have not shown any significant ability of coccidia to develop resistance to this compound—an indication of a most promising role for AMPROL—in the management of coccidiosis—for years to come.

EFFICACY

AMPROL exhibits important activity against the most significant coccidia—especially *Eimeria tenella* and *E. necatrix*. Carefully checked against *44 strains of seven coccidial species*, AMPROL has demonstrated a favorable pattern of performance under a variety of conditions.

And in laboratory comparisons with *mixed* infections of cecal and intestinal coccidiosis (*E. tenella, E. necatrix, E. acervulina* and *E. maxima*), AMPROL *gave more protection than other coccidiostats.*

PRODUCTION PERFORMANCE

AMPROL has permitted excellent growth and feed efficiency. Results of a year of experiments under practical, commercial-type conditions have substantiated the laboratory findings.

Compared with controls, broilers on AMPROL showed higher final weights, with favorable feed conversions.

CONSISTENT PERFORMANCE

In the tests, birds were exposed to four consecutive generations of ten virulent strains of *E. tenella*. This "killer" coccidial species did not develop significant resistance to AMPROL. Based on these and subsequent tests, it is anticipated that AMPROL will give consistently good protection under most field conditions.

SAFETY

AMPROL is well tolerated up to four times its suggested use level of 0.0125%. Side effects noted above a 0.05% level are specifically related to thiamine-depletion, and are quickly reversible by giving thiamine. This simple corrective procedure is unique with AMPROL.

Layer and breeder feeding trials indicate that recommended use levels of AMPROL will not affect egg quality, egg production or hatchability.

No toxicity is observed when feeds containing AMPROL are fed to cattle, sheep, swine and dogs.

USE LEVELS

The recommended use level for most field conditions is 0.0125%; where adverse conditions and less sensitive strains of coccidia prevail, the 0.025% level should be employed.

FURTHER INFORMATION

Reference data on the use of AMPROL in broiler feeds are available in a technical service bulletin.

For more details, or to place your initial order, contact your Merck representative or write to Agricultural Products, Merck Chemical Division, Merck & Co., Inc., Rahway, N. J.

Amprol® (amprolium)

MERCK

JOE BROOKS

BY AL P. NELSON

Do You Know People?

Milt Peters was in charge of the farm supply store at Joe Brooks' Feed Mill when a tall, jacketed farmer walked in about 11 in the morning.

"Hi, Bill," said Milt, recognizing Bill Bauer, a 40-year-old dairy farmer from out Cedarville way.

"Hi, Milt," said Bill soberly. "Is Joe around?"

"No, he went out on route four to call on a new customer," Milt said. "But he oughta be back about noon."

Bill Bauer grunted and rubbed his scratchy two-day-old beard with his right hand. "I got a bone to pick with him."

Milt's eyebrows raised. "You have? Can I help you?"

Mr. Bauer grinned a little. "Well, maybe. Now you know, Milt, us men have to stick together, don't we?"

Milt looked puzzled. "Yeah—why?"

"Of course you ain't married," put in Mr. Bauer, "but from what I hear, you get around. Redheads, ain't it?"

Milt blushed a little. "I prefer 'em," he grinned.

"Joe oughta know better," mused Mr. Bauer, drawing a cup of coffee from the urn on the counter where a sign said, "Help yourself, friend." He stirred in some sugar. "Any time a merchant starts givin' a woman more'n he gives a man, there's trouble."

"What do you mean?"

Mr. Bauer sipped his coffee, then shook his head appreciatively. "Ah, that goes good on a cold mornin'. Well, Milt, a woman always likes to brag that she gets more from people than a man. Joe fell for that like a steer for an open bag of concentrate."

"I really don't get it, Bill."

Mr. Bauer smiled. "For Christmas, Joe gives the women a little blue imitation leather notebook and also a serrated kitchen knife. And what did he give the men?"

"I know," said Milt. "A rain gauge and a pair of work gloves. Plus a calendar, with a farm record book deal."

"That's just what I'm kicking about," Mr. Bauer said.

"What do you mean? Seems to me you got more than your wife."

Mr. Bauer looked serious. "Sure I did, but you don't get my point."

"What's your point?"

"Joe shouldn't have given the women anything, especially my wife."

Milt blinked. "Bill, are you serious?"

"I sure am. When Joe gave just us men stuff at Christmas we could keep things under control. But now that he's including the women on the deal, it's bughouse."

"I don't understand."

Mr. Bauer grunted. "If you were married you'd understand. Every time my wife uses that little blue notebook—it fits into her purse—she says, 'Oh, isn't Joe Brooks nice to give us ladies such lovely notebooks. Be sure to give him all the business you can, Bill.'"

Milt nodded. "That's swell of her."

"Or," went on Bill, "every time she uses that serrated knife, she'll say, 'I do appreciate this dandy knife Joe Brooks gave me. Bill, we oughta buy everything we can from a feed man who's so nice to us.'"

"Well, what's wrong with that?" Milt asked. Then added, "For us."

"I suppose it's not bad for you feed fellows," put in Mr. Bauer, "but I'll bet most men customers don't like it."

Now Milt really looked puzzled. "Why not, Bill?"

Mr. Bauer sighed. "Of course, you're not married and you wouldn't understand, Milt. But let me try and explain. No virile, independent farmer wants his woman to be telling him every five seconds what to buy and where to buy."

"Why not, Bill? Farm women help their husbands a lot on the farm."

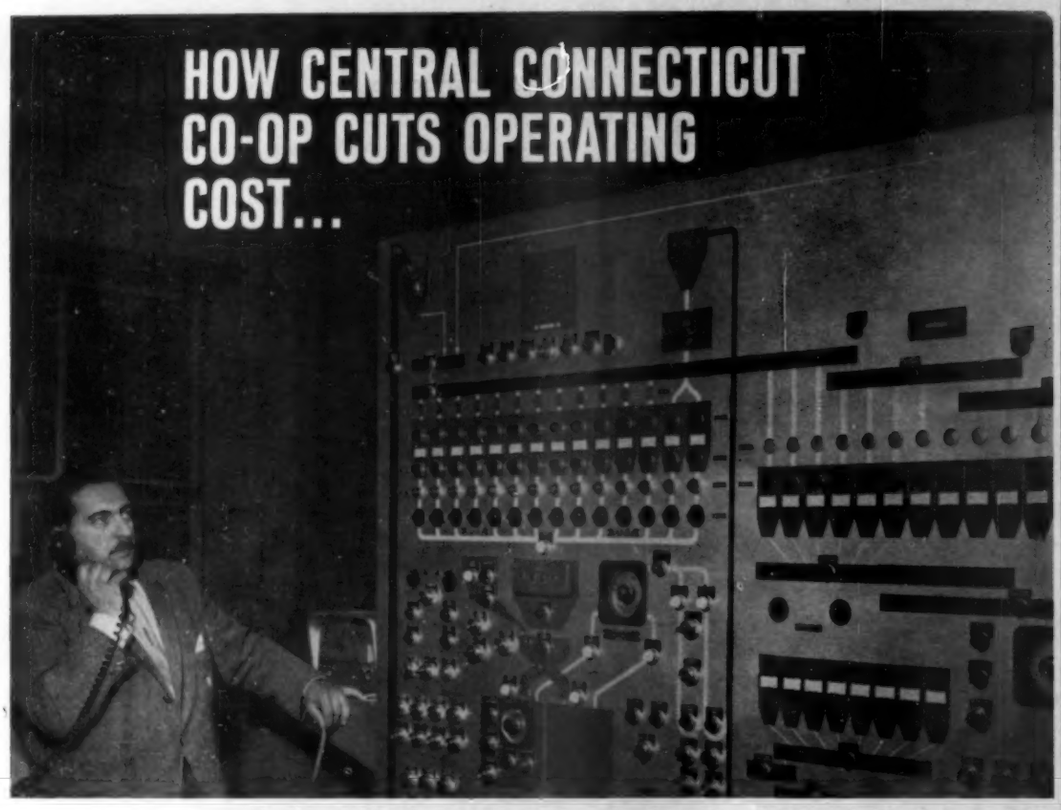
Mr. Bauer bristled a little. "Sure, they do, and we want 'em to go on helping us. But we don't want them to RUN our farms."

"Run 'em!"

Mr. Bauer nodded. "That's what it's comin' to unless we gang up on 'em. A man's wife makes him buy the kind of suit and overcoat she thinks he should wear. And hats, too. And have yuh noticed how many farmers look miserable when they come to church wearin' Christmas neckties that wives and mothers-in-law picked out for 'em? A man's home ain't his castle. The wife gets what she wants in the home. She even tells a farmer not to track up the kitchen floor or spill pipe ashes on the table."

"You mean," said a shocked Milt,

HOW CENTRAL CONNECTICUT CO-OP CUTS OPERATING COST...



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Why not see how Richardson Select-O-Weigh system can cut *your* operating costs, boost *your* production, and keep customers coming back for *your* precision-formulated feeds. Your nearest Richardson representative will be glad to discuss this with you... or write **Richardson Scale Company, Clifton, N. J.**

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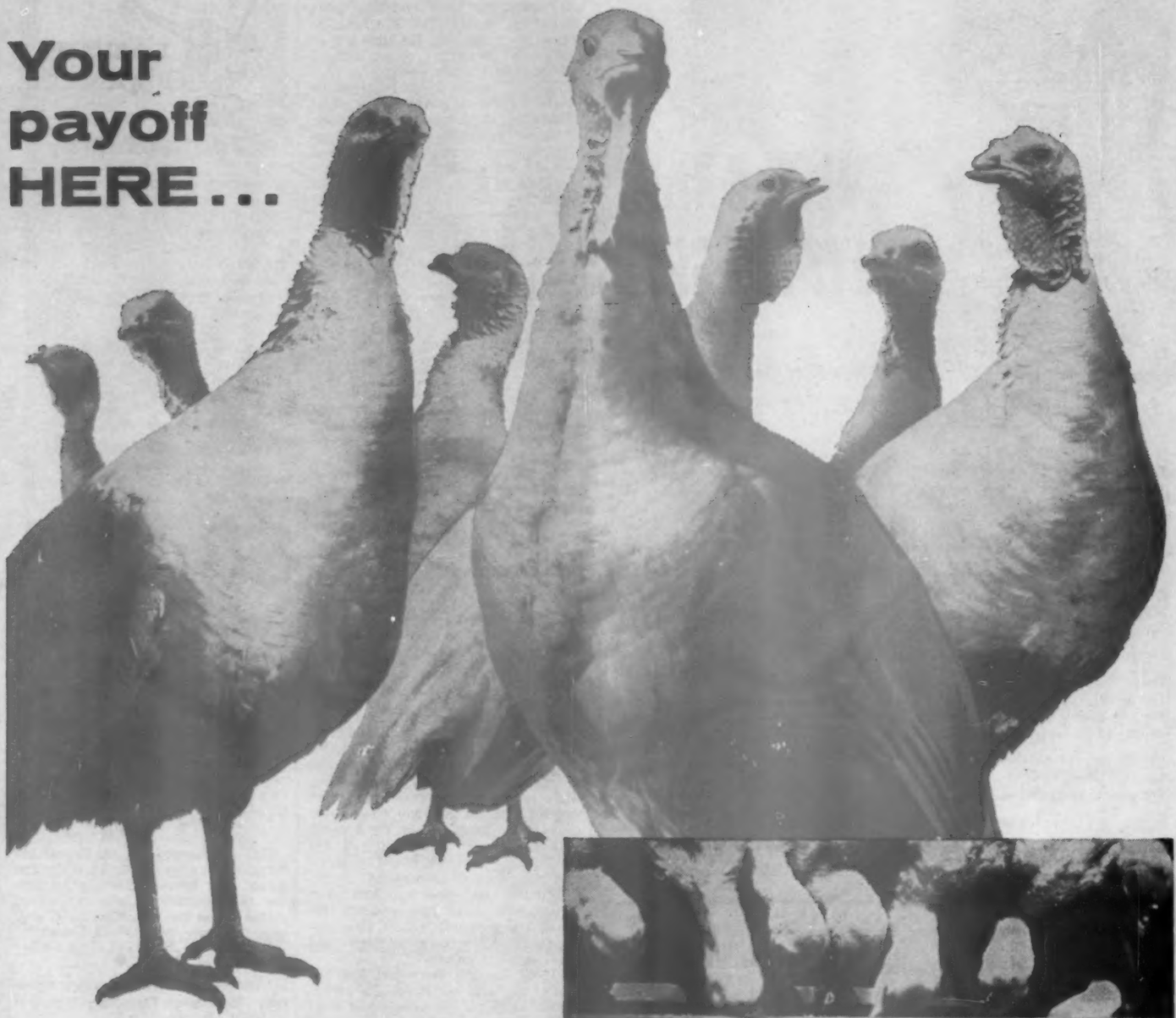

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The poults that pay off at market time are the poults started off with PRO-STREP.

Starter and grower rations, fortified with PRO-STREP, help keep up healthy appetites and maintain top weight gains . . . even in the presence of bluecomb and sinusitis!

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Powerful national advertising in leading farm and poultry publications and on 70 radio stations does a good job of pre-selling for you, and assures you repeat business.

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PILOT BRAND OYSTER SHELL
FOR POULTRY

Oyster Shell Products Company
Mobile, Alabama

"that a farmer has no castle?"

Again Mr. Bauer straightened. "He sure has. The barn and the farm, that's his castle. That's where he should have full say. He ain't got no say in the house."

Milt looked much wiser.

"Now when Joe keeps butterin' up the farm women, giving 'em stuff at Christmas, etc.," put in Mr. Bauer, "it messes things up. Then the women ain't satisfied to run their house and buy all the clothes for us farmers and the kids and themselves. No. Then they want to tell us where to buy our chicks, feeds, fertilizer, block salt and everything else. And that is where I draw the line, Milt. I don't mind the women runnin' their department, but I wanna run mine, and I don't like interference."

"Well, it's a free country," Milt said diplomatically. "You got a right to your opinion. Here, have a cigar. That's something we can't give to women."

He pulled out a box of choice cigars from under a counter and pushed it toward Mr. Bauer. It was a treat which Joe always reserved for good customers.

Mr. Bauer grinned, took a cigar, bit off the end. Milt had a match ready to light the cigar and Mr. Bauer puffed contentedly. "Ha," he chuckled, "wouldn't a woman look foolish, smokin' a cigar?"

They both laughed at that.

"Now, don't misunderstand me," Mr. Bauer pointed out patiently. "I love my wife. We need our women, boy how we need 'em — sometimes. But we don't want them bossin' every dang thing we do. Us men have to hang onto some of our dignity."

"Golly," said Milt, "I believe you're right, Bill. But Joe can't back out entirely on giving women presents at Christmas, now that he's started."

Mr. Bauer frowned. "Well, he can give different presents, some they don't rave about. Let him give each woman a broom. She won't rave over that. Or a whisk broom. Or a scrub pail. I gotta go now. You tell Joe what I said, and tell him I mean it. We men gotta stick together."

"I'll tell him," promised Milt, "but it sure will make him unhappy. He thought he had such a swell idea, giving farm women fancy notebooks and cute serrated knives."

"Well, Joe kin learn jest like the rest of us," said Mr. Bauer. He turned up the collar of his jacket and went out into the winter wind.

The meek little gent in the restaurant finally sighed and decided to give up on his steak. It was tougher than shoe leather. He called the waiter and pleaded that it be taken back to the kitchen. The waiter shook his head and said: "Sorry, pal, I can't take it back now. You've bent it."

◆ ◆ ◆

Sign on a Scottish golf course: "Members will kindly refrain from picking up lost balls until they have stopped rolling."

◆ ◆ ◆

At a party celebration in Leningrad, a guest found a piece of rubber tire in his stew. About to complain, he noticed a secret-police official watching him. "Well, everything is going according to our calculations," he said. "Here we've been in power only 35 years and already the automobile is replacing the horse."

◆ ◆ ◆

When the motorist who crashed into a telephone pole and brought down the wires recovered consciousness, his hands were clutching the wire. "Thank Heaven," he exclaimed fervently, "it's a harp."

◆ ◆ ◆

Then there's the one about the near-sighted porcupine who backed into a cactus and said, "Pardon me, honey."

◆ ◆ ◆

Father listened to his 7-year-old scratch away on his violin while the hound dog howled dismally nearby. As the practice session wore on, father asked the boy, "Can't you play something the dog doesn't know?"

◆ ◆ ◆

First Scientist: I still can't figure how the ancient Egyptians managed to build the pyramids.

Second Scientist: Well, for one thing, they didn't have coffee breaks.

◆ ◆ ◆

"Now don't forget," said the choir director, "the tenor will sing until we reach 'the gates of Hell'—then you all come in."

◆ ◆ ◆

Doctor, trying to explain to woman complaining about his high bill: "Don't forget, I made 11 visits to your house while your son had the measles."

Woman: "And don't YOU forget. He infected the whole school!"

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BREWERS GRAINS
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BEET PULP
AND 44 OTHER FEEDS

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Write for information giving dimensions and make of your truck bodies.

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PHONE AVenue 4-2133

Standard of the Industry for Liquid Feed Mixing, Pelleting and Cooling Equipment

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the Arbor Acres 50 has it!

Arbor Acres

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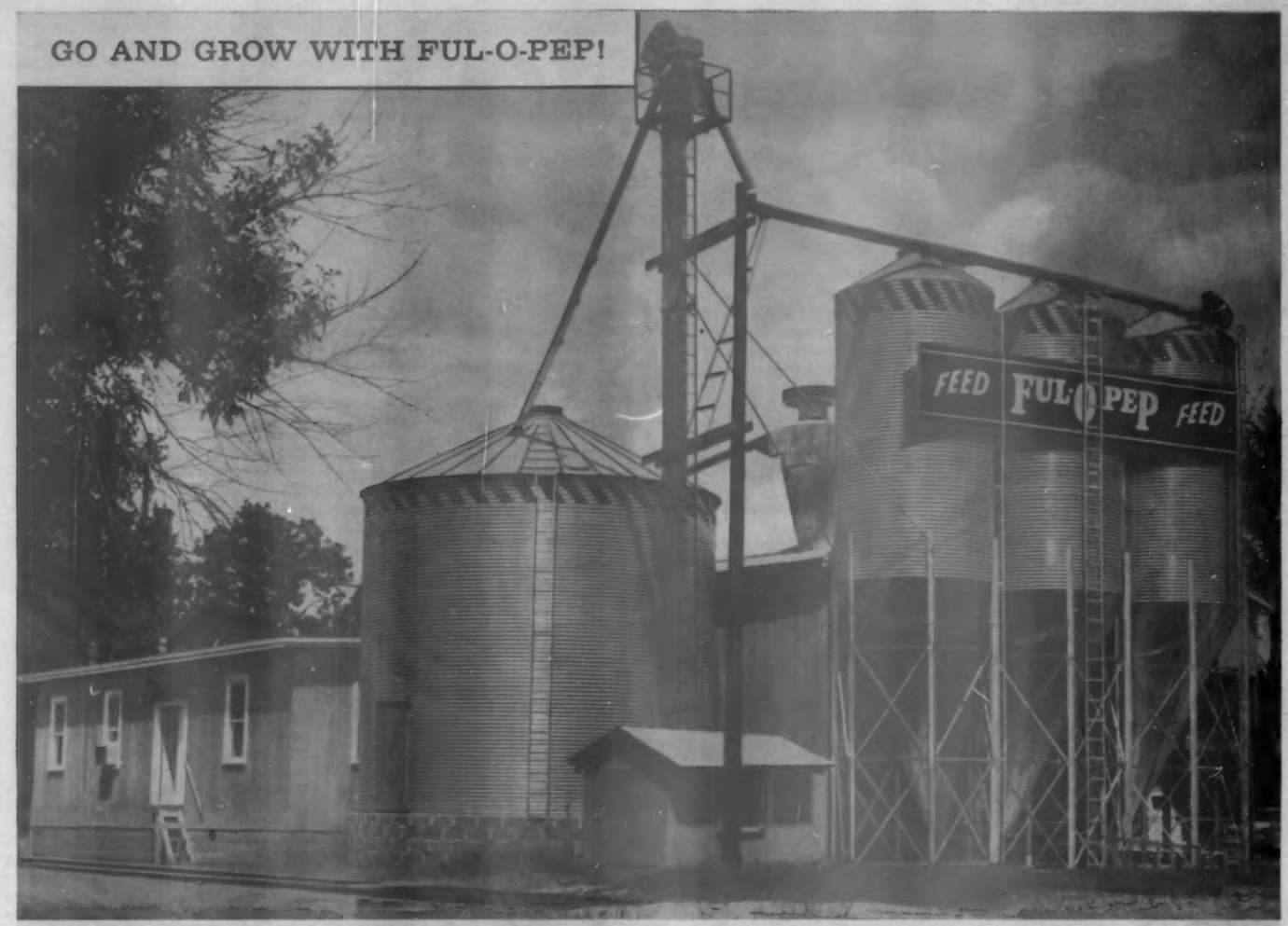

This highly efficient bulk-handling unit of Riverside Milling Co., Batesville, Ark., consists of three 28-ton holding bins, one 6000-bushel corn bin, and one 200-bushel corn bin. Ful-O-Pep helped arrange financing...a loan which was repaid in six months.

Already the partners are expanding—adding new holding bins with 40-ton capacity, plus 2 more corn bins. "Bulk handling is essential to stay in the forefront of the industry today," the partners say, "and Ful-O-Pep experience in this field is unsurpassed."

"We took a giant step for growth...Ful-O-Pep is our partner in progress"

—say four partners of Riverside Milling Co.

"Today's specialized feeders are looking more and more to bulk and local grinding and mixing to cut costs," say the partners of Riverside Milling Co., Inc., Batesville, Ark. That's why these four Ful-O-Pep dealers recently joined forces and set up a modern bulk and grind-mixing installation. Under a 4-way partnership, they keep their equipment investment low, and serve a wider area with bigger volume. "From quality supplements to feeder service, Ful-O-Pep is a real partner you can depend on for future growth," say the four.

GO AND GROW WITH FUL-O-PEP! *For information on the Ful-O-Pep 5-Point "Build-for-the-Future" Program, write Feed Sales Division, The Quaker Oats Company, Merchandise Mart, Chicago 54, Illinois.*

"We teamed up less than a year ago," said A. B. Collard, "so we could provide our customers bulk and grind-mixing service more economically." All four had previously been Ful-O-Pep dealers. They are T. J. Newton, A. B. Collard, Don Collard, and Jim Pearson.

Three bulk trucks are kept busy serving a growing list of customers. "Top conversions from feed mixed with Ful-O-Pep Concentrates give us edge on competition," they say. Ful-O-Pep field men help promote sales with customer service.

"We're banking on Ful-O-Pep...and Ful-O-Pep is banking on us," say the Riverside partners. "Bulk and grind-mixing is the only route to travel today ...and Ful-O-Pep is geared to modern trends. Ful-O-Pep's 5-Point Program means growth."

FUL-O-PEP

MADE BY THE QUAKER OATS COMPANY

Putting Research To Work

BY SPENCER H. MORRISON, PH.D., D. V. M.

Further Study of a Turbidity Test for Quality in Hay

● J. G. Archibald, E. Bennett and D. F. Owen, Jr., Massachusetts Agricultural Experiment Station. Journal of Dairy Science, Vol. 43, No. 11, pp. 1628-1631, November, 1960.

ABSTRACT AND COMMENT

Quick and simple methods for determining the feeding quality of hays have been the ideal objective of researchers for a long period of time. Artificial rumen techniques have been used in forage evaluations by extension workers in planning feeding programs for dairy herds. Chemical analysis of fiber content and use of various formulas have been also proposed as means of determining nutritive value by California workers for certain types of irrigated alfalfa. However, none of the methods so far suggested have been simple enough for very great practical application in the field by feed men.

Now it appears that possibly we may have something of interest which can help us evaluate forages. Naturally more testing is necessary, but the method is so simple and quick that it merits some fairly wide-scale testing in the field. It would not only be helpful (if it works!) in the dairy sections, but also in beef cattle and sheep sections as well.

The method is not new, as the Massachusetts workers reported on a very small-scale trial (16 lots of hay) in 1954. The present report covers an additional 77 lots of hay. The method used is as follows: Three grams of dry hay ground to pass a ⅛-mm. sieve are suspended in approximately 200 ml. of distilled water containing 4-5 drops of concentrated acetic acid. The mixture is agitated for five minutes in a Waring blender and then transferred to a 500-ml. volumetric flask, and made up to volume. The resulting suspension is centrifuged at 1,500 r.p.m. for five minutes and any floating particles are removed by pouring the supernatant liquid through a thin layer of glass wool. Turbidity of the filtered extract is determined in a Coleman spectrophotometer (model 11) at 675 mμ with a No. PC-5 Corning filter and distilled water as the reference liquid.

The hays evaluated by the group included eight lots of alfalfa, 16 of alfalfa with single grasses such as smooth brome and orchard grass, seven lots of alfalfa with mixed grasses, nine lots of mixed legumes (red and alsike clover), seven lots of timothy, one lot of predominantly Kentucky bluegrass, one lot of Ladino clover and brome grass, five lots of second-cutting mixed grasses of obviously good quality, and five lots of first cutting (late cut) mixed grasses of obviously poor quality. There were 34 lots of second or third cutting mixed grasses of very good quality, mostly timothy, red top and Kentucky bluegrass with minor amounts of quack grass, orchard grass and red clover.

The relationship between the turbidity and the various constituents followed much the same pattern as the 1954 report and showed significant correlation values for protein, fiber and protein-fiber ratio. Total sugars and lignin showed little or no relationship to the turbidity test. There was a very strong positive correlation between protein and turbidity and an inverse relationship between fiber and turbidity. Total ash was also closely related to turbidity.

The study of the relationship of this test to milk production has been continued by the researchers and during the four year period from 1955 to 1959, 28 lots of hay were fed to 27 Holstein cows in a dual feeding system (double-reversal and continuous) involving a total of over 3,000 cow-days. When no adjustment was made in the data for advancing stage of lactation, a correlation of 0.49 was observed between optical density of the hays and the average daily production per cow. When the records were corrected for lactation stage, the value for r was 0.44—a figure which closely approaches the highly significant 1% level.

The method has very distinct possibilities for further work since it is quick and easy to do. However, refinements are also obviously necessary, since the scatter diagrams of individual samples from which the regression lines are drawn show that the individual samples may vary widely from the general pattern. This

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means that the method in its present rough stage would not be accurate for some individual samples of hay—it would over- or under-rate them seriously. In terms of large numbers of samples from a certain area of the country, for example, it would be more accurate.

●

Timely and Worth Noting

A report at the 1958 Cornell Nutrition Conference discussed the requirement of the chick for vitamin K and showed it decreased with age. The requirement was shown to vary within and between experiments and was more accurately expressed on the basis of mcg./kg. chick gain. It was also demonstrated that on an equimolar basis, menadione was about 50% as active as vitamin K or menadione sodium bisulfite. (T. S. Nelson, "Further Evidence on the Vitamin K Requirement of the Chick," 1958 Cornell proc.).

A more complete report of this work has now been published in the current issue of the Journal of Nutrition (Vol. 72, No. 2, pp. 137-144) by T. S. Nelson and L. C. Norris entitled "Studies on the Vitamin K Requirement of the Chick. I. Requirements of the Chick for Vitamin K, Menadione and Menadione Sodium Bisulfite." Prothrombin determinations were used to measure the vitamin K_1 activity in both papers and it was shown in the last paper that the requirement for vitamin K_1 at two and four weeks was 524 ± 46 and 528 ± 10 μg/kg of diet; 588 ± 284 and 479 ± 140 μg for menadione; and 305 ± 51 and 357 ± 36 μg for menadione sodium bisulfite. When expressed on a molar basis, the requirement for vitamin K_1 at two and four weeks was 1.16 and 1.17 micromoles, respectively, per kg. of diet; 3.42 and 2.70 micromoles for menadione, and 0.93 and 1.08 micromoles for menadione sodium bisulfite.

Differing from the previous report (1958), it was therefore apparent that both vitamin K and menadione sodium bisulfite were about 2½ times more active than menadione rather than merely twice as active. Also, when certain of the experimental results are compared in the same experiment it was suggested that menadione sodium bisulfite was slightly more active than vitamin K_1. Perdue et al. (1957) reported that menadione sodium bisulfite complex was 1.7 times as effective as vitamin K_1 on a molar basis. The Cornell work does not support this contention.

Use of Ground Whole Soybeans as Premix For Urea Said to Be Dangerous Practice

MANHATTAN, KANSAS — The possibility of a chemical reaction producing free ammonia—found to be deleterious to livestock—is a danger of using ground whole moist soybeans as a premix for urea, says Dr. Gravers K. L. Underbjerg, department of physiology, school of veterinary medicine, Kansas State University.

He notes that whole soybeans are a rich source of the enzyme urease. It is this enzyme which, when free to act upon moist urea, results in the production of ammonia and carbon dioxide.

When soybeans are extracted with a solvent and subjected to heat the processed meal will not contain any urease, because it is destroyed by heating. "Usually premixes containing urea utilize starches or other ingredients as a base," Dr. Underbjerg notes. "These premixes are safe to use and no ammonia will be liberated. When such concentrates are used and properly mixed and used in the right proportion in balanced rations, little or no side actions from the use of urea will occur."

Dr. Underbjerg relates that a sample of a feed premix consisting of urea, whole ground soybeans and ground milo grains was brought to a Kansas State laboratory for examination. The sample was moist, with a decidedly strong odor of ammonia. Questions asked by physiologists were these: Is free ammonia dangerous to the health of cattle? Why is liberated ammonia in the feed?

Dr. Underbjerg explains that free ammonia in feed for cattle or liberated in large amounts in the rumen is dangerous to the health of livestock. Ammonia is readily absorbed from the rumen and levels of ammonia nitrogen of 2.5 mg. per 100 ml. of blood have been reported to produce ataxia or unsteady gait in steers. Levels of ammonia nitrogen of 4 mg. per 100 ml. of blood are reported to induce alkalosis and death. Central nervous system disturbances and kidney lesions may accompany these symptoms.

The hydrolysis of urea in the presence of urease probably is increased in momentum when it enters the rumen, Dr. Underbjerg notes, and most or all of the ammonia released is absorbed into systemic blood where it produces undesirable effects. He adds that it is not likely that microorganisms would have sufficient time to bind and utilize the rapidly liberated ammonia.

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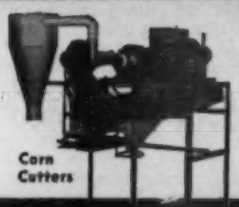
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Pilch Better than average results	779	4.5	$ 42.22	$ 84.44

Based on 50 hens housed at beginning of test. Test arranged according to income over feed costs. All comparable Pilch entries in Official Tests 1958 versus 1959 to end of test. Largely random sample growing and laying trials in U.S.

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How to Figure Egg Production Costs

UNIVERSITY PARK, PA. — Estimated costs of producing a dozen eggs in Pennsylvania when production on a hen housed basis equal 16 doz., 18 doz. and 20 doz., have been prepared by Carl O. Dossin, extension poultry specialist at Pennsylvania State University here.

The material, assembled to show poultrymen what it would cost if eggs were produced under certain conditions, was distributed at the Pennylvania Feed Dealers annual convention recently in Harrisburg.

The bulk of this material including a table showing egg production costs at various production levels follows:

Costs of producing a dozen eggs will vary from farm to farm so the following information is offered as a guide to help figure approximate costs.

Housing and equipment costs may cover a wide range. The table uses $3, $4 and $5 housing and equipment cost per bird as a realistic Pennylvania range. On some farms the housing and equipment may be fully depreciated while on others these items may be new.

Borrowed money must be repaid from egg receipts. Some will depreciate housing over a 20-year period and equipment over five or 10 years. Others will choose another schedule. For easy figuring, costs shown in the table have been combined and depreciated over a 1-year period.

Feed requirements and feed costs are also subject to a great deal of variation. Pennsylvania studies show operations using home grown grains at various levels in poultry rations and others using commercial mixes exclusively. At many poultry extension meetings Pennylvania poultrymen have come up with 3¾¢ to 4¢ lb. as a realistic range in feed cost. The pounds of feed required to produce a dozen eggs from Leghorns has been calculated to cover a range of 4 to 5 lb.

The cost of each pullet housed including mortality and minus salvage value must be depreciated over the productive life of the flock. Costs involved in raising pullets should include cash costs of chicks, feed, litter, fuel, vaccination, medication, insurance, electricity, as well as interest on the money invested, labor, truck, etc.

For the sake of simplicity and uniformity, Pennylvania figured the cost without labor cost of each ready to lay home grown pullet housed at $1.75. A 40¢ salvage value decreases this cost to $1.35 per pullet housed, but a 15% mortality during the laying year brings the total costs to be depreciated to $1.60. If pullets are purchased rather than home grown, at least 25¢ can be added to their initial cost. In some cases this may run higher.

Labor cost is often disregarded in an owner-operated poultry flock on the grounds that labor return will be whatever is left over after all bills are paid. Pennsylvania feels that a fair wage to the operator must be figured in the cost of production if the enterprise is to be on a sound business-like basis.

A labor value of $3,000 per year per full time employee was used. At this figure, it is assumed that he will care for 3,000 layers, clean houses, wash, grade and pack eggs and grow the replacement pullets. (In table, labor cost has been eliminated from figure on cost of home grown pullet as it is included in this $3,000 figure.)

If pullets are purchased and mechanical equipment reduces chore labor or there is no egg grading, then one man can probably handle 6,000 or more layers. It must be remembered, however, that this will increase pullet cost, and probably decrease the price received for eggs since some one must grade them.

Miscellaneous costs include interest on investment, interest on working capital, truck, electricity, gas, insurance, grit, litter, shell, medication, etc. The 2-3¢ doz. eggs allotted may seem high at first, but not when one realizes that 5% interest on the money invested in housing and equipment for a 3,000-hen operation alone will run over 1¢ doz. eggs.

Montana Feedlot

BILLINGS, MONT.—Owners of a new 91-acre spread of land with 32 wells and 32 acres of pens, feed mill, storage building, branding chute and office, are 40 Montana ranchers and seven Billings businessmen.

Known as the T-Bone Feeders, the operation south of Shepherd will be able to feed 18,000 cattle annually on a rotation basis. Ranchers can consign beef on a delivery and pick-up basis and pay for cost of feeding and use of facilities, says Herschel Lenard, feedlot manager.

JOINS DOW CO.

OMAHA, NEB. — John Andrews, nationally known livestock and poultry illustrator, has joined The Dow Co. of Omaha as art director and vice president. The Dow Co. specializes in agricultural advertising, using a two color format incorporating the scratchboard technique of Mr. Andrews. Prior to becoming a partner in The Dow Co., Mr. Andrews was servicing clients in 43 states and 12 foreign countries with his farm art.

Costs Per Dozen Eggs at Various Production Levels

	At 16 doz. eggs per hen housed			At 18 doz. eggs per hen housed			At 20 doz. eggs per hen housed		
	A	B	C	A	B	C	A	B	C
Housing cost per bird	($3)	($4)	($5)	($3)	($4)	($5)	($3)	($4)	($5)
Housing and equipment cost (per doz. eggs), cents....	1.9	2.5	3.1	1.7	2.2	2.7	1.5	2.0	2.5
Pounds of feed per doz. eggs	4	4½	5	4	4½	5	4	4½	5
*Feed (per doz. eggs) @ 4.0c per lb., cents	16.0	18.0	20.0	16.0	18.0	20.0	16.0	18.0	20.0
Pullet cost plus 15% mortality minus salvage value of 40c = $1.60, cents	10.0	10.0	10.0	8.9	8.9	8.9	8.0	8.0	8.0
Labor—$3,000 per man (he will care for 3,000 layers, clean, pack and grade eggs, and grow pullets), cents	6.3	6.3	6.3	5.5	5.5	5.5	5.0	5.0	5.0
Miscellaneous costs, cents ...	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Total costs, cents	36.2	38.8	41.4	34.1	36.6	39.1	32.5	35.0	37.5

Note that all feed cost figures on the preceding chart — 4c per pound. This was done to simplify the chart. To figure various other changes and their effect on the cost of one doz. eggs see the notes below.

*If feed costs 3.75c per pound—subtract 1c—column A; 1.1c—column B; 1.2c—column C from total cost per doz. eggs.

*If feed costs 4½c per pound—add 2c—column A; 2.2c—column B; 2.5c—column C total cost of doz. eggs.

*If feed costs 5c per pound—add 4c—column A; 4.5c—column B; 5.0c—column C.

If housing costs $2 per bird, reduce cost per doz. eggs by ½c from the $3 housing base.

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Kentucky Swine Research

By Dr. C. E. Barnhart
University of Kentucky

Trials have been conducted for several years at the Kentucky station to determine the value of forages for gestating brood sows. During the past winter 40 mature sows were randomly allotted to four different treatments at breeding. The treatments were: (1) sows confined to concrete feeding floor and fed 6 lb. of gestation ration per day, (2) Balbo rye pasture plus 2 lb. of the gestation ration per day, (3) Balbo rye pasture plus 4 lb. of the gestation ration per day, and (4) self-fed alfalfa silage plus 3 lb. of the gestation ration per day (sows confined to a concrete floor). All sows were hand-fed twice daily the complete gestation ration.

Results of this trial further substantiate previous trials with rye pasture. Mature sows apparently can produce excellent litters with a very minimum of feed if good rye pasture is available. The size of the sow and her condition will largely determine the amount of concentrate to feed, assuming the pasture is ample. On the basis of this trial the 2 lb. level appears to be quite adequate and satisfactory. The rye pasture had a carrying capacity of about five sows per acre. The performance of the sows receiving alfalfa silage was equally as good as that of the other lots of sows. These sows were self-fed the silage and consumed an average of 14-15 lb. of silage per day. Where silage is available, it appears to be an excellent brood sow feed. In previous trials, alfalfa pasture has proven to be as valuable as rye pasture.

Two trials were conducted to study the effects of feeding NF-180 to brood sows prior to and following farrowing as a control for pig scours. Sows were fed medicated feed approximately two weeks prior to farrowing and three weeks following farrowing. Two, four and six pounds of NF-180 per ton of sow feed was compared to the basal unmedicated ration. Considerable scouring was noted among the pigs farrowed and suckled by unmedicated sows in the first trial. Scours were practically non-existent among the pigs produced by the medicated sows. Little or no scouring occurred in any of the pigs in the second trial. Number of pigs per litter at three weeks of age was improved by the inclusion of NF-180 in the sow rations in the first trial. Although there was no apparent improvement in litter size at three weeks of age due to medication in the second trial, the pigs farrowed and suckled by the medicated sows were heavier at three weeks than the controls. Sows fed the low levels of NF-180 appeared to perform about as well as those on the higher levels.

Dr. C. E. Barnhart

AUTHOR—Dr. Barnhart is a professor of animal husbandry at the University of Kentucky and is in charge of swine research and teaching there. He holds a B.S. degree from Purdue University and a Ph.D. degree from Iowa State University.

Eighty pigs, in which severe scouring was occurring, were divided into two groups of equal numbers. One group was fed the basal starter and the second group was fed the basal starter plus three levels of NF-180. The basal pigs continued to scour quite badly and the livability was only 55%. Pigs fed the basal starter plus NF-180 scoured very little and the livability was 80%. Remember, these were pigs showing a high level of infection as indicated by scouring and general unthriftiness. There wasn't much difference between pigs fed 2, 4 and 6 lb. of NF-180 per ton of starter.

In a series of trials with growing-finishing pigs, several feed additives were compared. Nitrofurans were fed to pigs fed on concrete and legume pasture. The nitrofurans improved feed efficiency by 10.5 lb. of feed per 100 lb. of gain for the pigs on concrete and by 8.6 lb. of feed for those pigs grazing pasture. Gains were improved in all lots fed the medicated rations. It is interesting to note that the pigs grazing pasture, a total of 40, required 343.8 lb. of feed per 100 lb. of gain as compared to 329.7 lb. of feed per 100 lb. of gain for the 40 pigs fed on concrete. The drylot pigs gained 1.47 lb. per day as compared to 1.22 lb. per day for the pasture pigs.

Of the various additives tested with 222 pigs on concrete and fed to 125 lb. live weight, NF-180 (2 lb./ton), copper sulfate (2 lb./ton), Terramy-

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New Sales Supervisor

MINNEAPOLIS — Douglas E. Petersen, former manager of Star Hi farms, hatchery and processing, Glendive, Mont., has been named Nutrena Feeds turkey sales supervisor for southeastern Wisconsin, according to Elmer Ellingson, regional turkey sales manager here.

Continental Grain Offers Fellowship

NEW YORK — Continental Grain Co., grain trading, handling and storage organization, announced its 1961-62 graduate school fellowship program.

Full tuition and other benefits are included in the grant offered to qualified undergraduates.

The program is directed toward graduating seniors in universities who want to pursue graduate studies in either business administration or agriculture. Fellowship requirements and applications are available at the office of the dean of the following participating institutions:

Kansas State University of Agriculture and Applied Science; University of Minnesota, institute of agriculture; Northwestern University, graduate school of business, and University of Pennsylvania, Wharton school of finance and commerce.

Michel Fribourg, president of Continental Grain Co., said: "We at Continental Grain feel that this graduate fellowship program will help permit young college graduates, of limited means, but high promise, to pursue graduate study in business and agriculture, thus helping to advance educated manpower potential in America."

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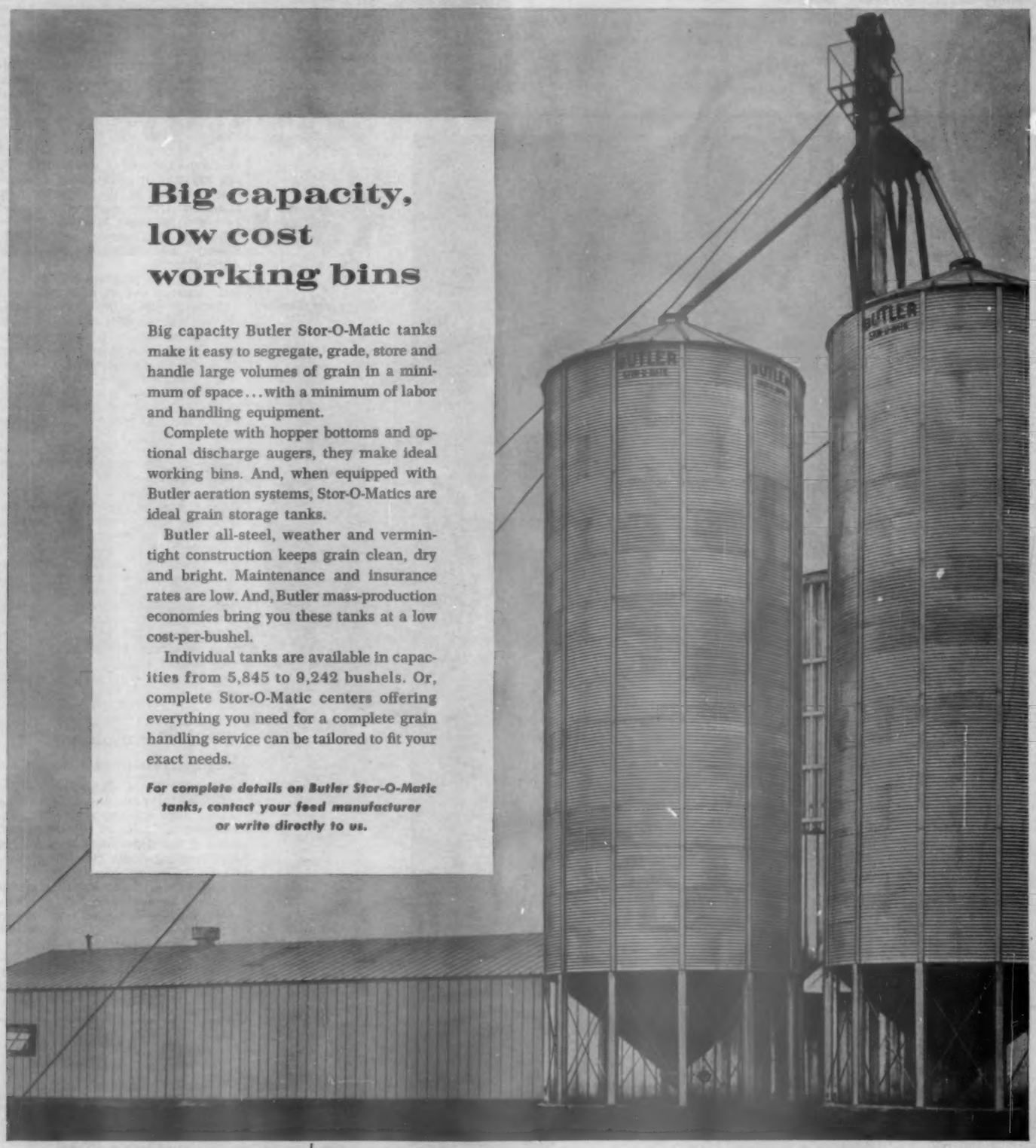

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Program Details Told For Retail Feed Dealers School in Minnesota

ST. PAUL, MINN.—J. O. Christianson, director of agricultural short courses at the University of Minnesota, has announced the names of some of those men who will participate in the annual Retail Feed Dealers Training School, to be held on the St. Paul campus from Jan. 10 to 13.

One of the featured guests will be George C. Greenleaf, executive secretary of the Ohio Grain and Feed Dealers Assn., Inc., Worthington, Ohio. Mr. Greenleaf will discuss employee and public relations, advertising and promotion and "Growing On the Job."

Other industry speakers to appear on the program include Joseph E. Donovan, general manager, Donovan's, Inc., Albert Lea, Minn.; W. D. Flemming, Minneapolis, secretary, Northwest Retail Feed Assn.; George W. Kolb, Flour Mill Co., Belgrade, Minn., and vice president Northwest Retail Feed Assn., and W. H. Lenton, manager, Farmers Elevator Co., Inc., Stewartville, Minn.

These speakers, plus a host of participants from the University of Minnesota, will discuss credit management, analyzing sidelines, home produced feed and the local feed dealer, developments in the retail feed business, analyzing the financial statement, outlook in view of changing agricultural policies, improving operating efficiency, strategies needed to meet the change and poultry, dairy cattle, swine and beef cattle management and nutrition.

Program chairman Harold Pederson, extension economist at the University of Minnesota, said the subject matter will be of interest to the general dealer in feeds and related products.

Arrangements for enrollment should be made through the Short Course Office, Institute of Agriculture, University of Minnesota, St. Paul 1. Dormitory facilities will be available on the campus.

Farmco 'Holds Own'

MADISON, WIS.—Although earnings and sales have been down this year, the Wisconsin Farm Bureau's supply cooperative, Farmco, was able to maintain its share of the market, Percy Hardiman, president of the bureau and of Farmco, reported at the bureau's annual meeting here.

Mr. Hardiman said the feed, seed, fertilizer and general farm supply cooperative maintained its record of paying dividends on preferred and common stock in 1960, and also paid a patronage refund to those who did business with it. He said remodeling and expansion of Farmco's physical facilities was done at a cost of more than $250,000.

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Marketing Inovations Theme for Poultry Fact Finding Meeting

KANSAS CITY—"New Departures in Marketing" will be the theme for the 1961 Fact Finding Conference scheduled to open here Feb. 10, according to announcement by Harold M. Williams, president, Institute of American Poultry Industries, sponsor of the event.

Nearly 4,000 businessmen and women from the poultry and egg industry are expected to attend. Built around the idea that marketing is the key to everything, the program will include talks on the following subjects: "Is Packing for the Controlled Brand the Answer?" "How to Reduce New Product Risk" and "Is Merger Into Larger Selling Organizations the Answer?"

Those attending will also get information on financing problems. There will be details on the Small Business Administration and Small Business Investment Corp. and the roles they can play in the industry.

A foreign affairs expert is slated to discuss the role of the poultry and egg industry in maintaining a favorable balance in the export-import situation. Other speakers will discuss the following subjects: "Farm Surpluses — Controls or Adjustments?" and "Minimum Wage for Agriculture."

Also on the program will be special talks on export marketing and a series of commodity talks on eggs, broilers and turkeys. These sessions will review the most current problems in each area and will feature dramatic presentations on the consumer information work and merchandising activities of the National Broiler Council, National Turkey Federation and Poultry & Egg National Board.

Kansas City Municipal Auditorium's exhibition hall will house the Fact Finding Conference exhibits, which will be open throughout the three-day event. The four acre display will feature a wide variety of services and equipment—from breeding stock to spices for prepared poultry, from feeds to consumer packages, from live coops to boning machines, from individual pieces of processing equipment to complete processing lines.

Information on hotel accommodations or other Fact Finding Conference details may be obtained from the Institute of American Poultry Industries, 67 E. Madison St., Chicago 2, Ill.

Feed Technology Scholarships to Four

MANHATTAN, KANSAS — The awarding of four feed technology scholarships totaling $1,600 was announced by John A. Shellenberger, head of the department of flour and feed milling industries at Kansas State University, Manhattan.

The awards, and firms making the scholarships available: Jack P. Chapman, Buffalo, Quaker Oats scholarship; Jack Douglas Coffman, Reading, Industrial Research Foundation; Lloyd D. Gillet, Peabody, Weitz-Hettelsater, and Harold Richard King, Olsburg, Grain Processing Machinery Manufacturers Assn.

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Colo.	Corn-barley	1	7.0	6.9	58.8	58.6
Colo.	Corn-milo	1	7.7	7.4	63.2	61.8
Colo.	Corn	1	7.3	8.0	60.4	61.0
Fla.	Corn-citrus	2	7.7	7.1	61.5	61.1
Fla.	Corn-molasses	1	7.2	6.2	61.4	61.3
Fla.	Corn	1	3.5	3.5	59.9	60.6
Ill.	Corn	1	8.9	8.1	64.4	63.4
Ind.	Corn	1	7.3	6.6	—	—
Iowa	Corn	8	7.3	7.2	60.3	60.2
Ky.	Corn silage	1	4.0	4.0	58.9	59.4
Mich.	Corn	2	6.7	7.1	61.9	62.0
Minn.	Corn	1	7.7	7.0	59.7	59.0
Nebr.	Corn	1	8.8	8.6	64.0	63.2
N. C.	Corn	1	7.4	7.6	60.6	58.4
S. Dak.	Corn	1	7.1	7.4	59.7	59.7
Tenn.	Corn	3	4.3	5.3	56.3	55.8
Ga.	Cottonseed hulls	1	3.6	4.1	55.0	56.3
Iowa	Stalk silage	1	7.0	6.6	61.3	61.5
Okla.	Sorghum silage	1	6.3	6.8	60.8	60.5
Tex.	Sorghum silage	1	5.6	5.6	62.5	62.7
Tex. Tech.	Cottonseed hulls, loose	1	5.0	4.7	63.4	63.6
Tex. Tech.	Cottonseed hulls, pelleted	1	6.0	5.9	62.4	65.2
Va.	Grass pasture	1	—	—	55.0	55.5
Wye.	Beet pulp-hay	1	—	—	58.7	58.5

*Grades based on following numerical values: 8—Choice; 7—Low Choice; 6—High Good; 5—Good; 4—Low Good; 3—High Standard; 2—Standard.

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DEPENDABILITY... in Quality and Service

Big Integrated Operation in Quebec Sold $20.4 Million Total Feed, Grain in 1959

By Special Correspondent

MONTREAL, QUEBEC — This story is best told in fractions. And when these fractions are lumped together they add up to one, of course, but the whole in this particular instance is what many Canadians consider to be the most extensive vertically integrated and multi-purpose operation in their dominion. This operation is La Cooperative Federee de Quebec, which has its main office in Montreal.

Now for the first fraction: Grains and feed accounted for nearly a sixth of the cooperative's $115 million worth of sales in 1959. The exact figure was $20.4 million, and it included complete formula feeds and protein concentrates.

Another fraction: The cooperative's total sales of farm supplies, which include feeds, grain, fertilizer, pesticides, farm machinery, petroleum products and miscellaneous items, amounted to about a third of the $115 million in sales reported for all operations in 1959.

Four Feed Plants

The central association of La Cooperative Federee de Quebec operates four feed plants and warehouses to provide grinding and mixing services. And it has a distributing service for formula feeds.

A grain and feed department of the federation acts both in the capacity of a broker in the sale of grain to local feed mills and of processor and distributor of formula feeds to some 135 local feed and grinding mills and to 200 local farm supply cooperatives. In addition, the cooperative operates a licensed grain elevator in Montreal.

In 1958, the organization's feed mills shipped in about 35 million bushels of grain from the prairie provinces to supplement locally produced oats and mixed grain.

Technical advisory and supervisory services to promote quality and efficiency in production and marketing are maintained. Also, the cooperative has a group of management consultants to advise boards of directors and managers in the preparation of their market area studies and to evaluate expansion programs.

So far, only a third of the story has been told. It is the remaining two thirds which involve farm product sales of some $78 million worth and the vastly integrated program comprising:

—Three meat packing plants representing an invesment of more than $6 million.

—A modern poultry and egg processing plant with a capacity of 3,000 birds an hour.

—A hatchery with an output of about 40,000 chicks per hatch.

—A central operation for marketing butter, cheese and other dairy products manufactured by local affiliated cooperatives.

—A brokerage and sales service for handling fruits and vegetables.

—A variety of contracts covering livestock, poultry and egg production and feed financing.

—A farm machinery supply service.

—A central sales service for distributing petroleum products through local cooperatives.

—A financing and management service available to local co-ops.

—Dissemination of current market information.

—Organization of local trucking services.

—Low-cost group life insurance for co-op members and employees and their families.

Meat Packing

In 1959, the cooperative handled 611,008 head of cattle, hogs and sheep and processed and sold $45 million worth of meat and meat by-products. The cooperative processes broilers, turkeys and other fowl, and it candles and packs eggs.

At the end of 1959 La Cooperative Federee de Quebec had 375 affiliated local cooperatives — or 75% of all agricultural co-ops in Quebec—and the 50,000 farmers represented by these locals amount to more than 40% of all the farmers in the province.

In 1958, when La Cooperative Federee de Quebec reported $95 million in sales, all other cooperatives in the province reported sales of $170 million.

HEADQUARTERS BUILDING—In the Metropolitan Central Produce Market of Montreal stands this new headquarters building of La Cooperative Federee de Quebec, said to be the most extensive vertically integrated and multi-purpose agricultural organization in Quebec.

LOCAL MILL—This feed mill and warehouse at Princeville, Quebec, is typical of the 375 local cooperatives affiliated with La Cooperative Federee de Quebec.

WAREHOUSE—This view shows tall stacks of sacked feed and fork lift truck in operation inside new warehouse of La Cooperative Federee de Quebec at Montreal.

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Pelleting Feeds for Beef Cattle

"An all-pelleted ration for beef cattle is now a reality and future research will undoubtedly supply the answers needed for the problems involved in making this method of feeding possible."

By Dr. T. J. Cunha
University of Florida

Dr. T. J. Cunha

AUTHOR—Dr. Cunha, who is head of the department of animal husbandry and nutrition at the University of Florida, presented this information on "Pelleting Feeds for Beef Cattle" at the recent Everglades Experiment Station Beef Cattle Field Day held at Belle Glade, Fla.

Most cattlemen are very much interested in the possible use of pelleted feeds. They want to know how practical, economical, and when they should be used. The answer is that pelleted feeds definitely are of value in cattle feeding and in most cases will increase animal response. The big question is, will the additional response pay for the added cost of pelleting? Sometimes it will and other times it will not.

As new engineering developments occur with pelleting equipment, the cost of pelleting will decrease and there will be more cases where pelleting will pay. Thus, the economics involved will determine how extensively the pelleting of feeds will be used in the future. There is no doubt, however, that pelleting of feeds has many advantages and that it will be increasingly used in the future. In fact, there are many feed companies which already have many of their feeds available both in the meal and pelleted forms because of the demand for pelleted feed by many livestock and poultry feeders.

At the present, there is still need for much more research on pelleting feeds for beef cattle. Many questions are still unanswered. However, from the research conducted to date the following facts seem to be established:

1. Pelleting increases intake of roughages. This is especially the case with low quality forages. Some of it is due to a faster passage of the roughage through the digestive tract. Part of it is due to the fact that the feed is compressed and thus the animal can accommodate more feed in its digestive system. Pelleting also increases the palatability of lower quality roughages. When an animal consumes a greater quantity of feed, then a larger percentage of it goes for gain and a lesser percentage for body maintenance.

2. Pelleting seems to speed up passage rate of the roughage through the digestive system. It is possible that the fine grind of the roughage is responsible for this. This may make it possible for the roughage to leave the rumen at a faster rate and thus explain part of the greater intake of feed when pelleted.

3. Pelleting does not seem to improve the digestibility of a roughage. Actually, there is some research information to indicate that digestibility might be decreased slightly. The faster passage of the roughage through the digestive tract may account for slightly lower digestibility. The high temperature and pressure required for pelleting may also influence the digestibility of the feed.

4. Pelleting improves low quality roughages more than high quality ones. This is probably due to the increased feed intake since poor quality roughages are usually consumed at lower levels.

5. Pelleting prevents the sorting out by animals of the more unpalatable parts of the feed. Cattle usually waste a considerable part of the hay and usually leave behind the coarse stems and any weeds which it may contain. In some cases, the waste might be as high as 30-40% of the hay depending on its quality. Thus, pelleting prevents waste of hay and other constituents of a ration which might otherwise be unpalatable.

6. Pelleting will prevent wastage of the valuable leaves of hay. This can be a very important loss depending on how the hay is fed and how easily the leaves fall off.

7. Storage space requirements are reduced considerably. This can be quite an important saving and especially with large feeding operations.

8. Pellets are suited for mechanical feeding or self-feeding. This will become of increasingly more importance in the future as more and more of our feeding operations become highly mechanized as a means of saving on labor costs.

9. Roughage pellets can be more easily and accurately mixed with the concentrates in the ration. This will allow for complete ration control in the proportion of roughage to concentrates which one might wish to feed. This can be very important in making maximum use of roughage in the rations fed animals. This will mean that the cattle will be eating a completely balanced ration every time they eat a mouthful of feed.

10. High concentrate levels decrease response from pelleting. With a completely pelleted ration, the cattle do well with higher levels of roughage in the ration. About 20 to 30% of concentrates with 70 to 80% roughage gives excellent results when pelleted. However, when higher levels of concentrates are fed the beneficial effect of pelleting decreases. When the concentrates make up a large part of the total ration, pelleting will usually decrease the intake of feed and rate of gain although feed per pound of gain may still be increased. There is much yet to be learned on proper ratios of concentrates to roughages with different kinds of cattle and with different feeds. Just why pelleting is more beneficial with high roughage to concentrate rations and not with high concentrate rations is not entirely understood.

11. Pelleting increases rate of gain and feed efficiency. This increase is the greatest with poor quality roughages as compared to high quality roughages and with high fiber feeds as compared to low fiber feeds.

12. Animals may go on feed faster and stay on full feed better. There is still some question as to whether this will be the case in the majority of cases. Undoubtedly, this will be influenced by many factors including the roughage used, its level in the ration, the fineness of grind and kind of pellet, the kind of cattle, etc. More research is needed on this point.

13. Pelleting reduces dustiness in handling and feeding. This is a very important advantage with certain kinds of rations and feeds.

14. Animals fed a pelleted feed ruminate or "chew their cud" less. This may increase feed conversion since the cattle save the energy normally spent on rumination. Whether a lack of rumination has any other bad or good effects on an animal is not known.

15. Pelleted feeds are much easier to feed under range conditions. The use of pellets simplifies many of the problems of feeding grains, protein supplements and/or hay on the range.

Disadvantages

Some of the disadvantages which might be cited for pelleting based on present knowledge are as follows:

1. The extra cost from grinding and pelleting is greater than the benefits derived in many cases. However, this disadvantage will gradually disappear as the cost of pelleting decreases due to more efficient pelleting equipment.

2. Fine grinding of roughages may decrease the butterfat content of milk produced by beef or dairy cows consuming such roughages even though it is pelleted. More study is needed to more adequately answer this problem.

3. Rumen parakeratosis (inflammation of the rumen wall) may occur when a high level of pellets is consumed. Recent Georgia studies, however, showed that rumen parakeratosis occurred as much with cattle fed a finely ground ration as with the same ration pelleted. Under their conditions, it seemed that the fine grinding might have been responsible for the rumen parakeratosis of beef cattle. This problem needs much more study to determine if and when it will occur with different rations and with varying concentrate to roughage ratios. The cause for the condition also needs to be determined.

Problems

Some of the problems of pelleting on which much information is still needed are as follows:

1. What fineness of grind is necessary and best for different feeds?

2. What size and hardness should pellets of different feeds have to give best results and to prevent fine particles from separating out?

3. What processing temperature is best for different pelleted feeds?

4. What effect does pelleting have on rumen papillae and in turn does this affect animal performance?

5. How does a pelleted feed affect the digestive system of the animal and through what mechanisms is a beneficial effect obtained?

6. What effect does pelleting of roughages and concentrates which are fed in varying ratios to each other have on the fat and other nutrients in milk?

7. If concentrates and roughage are both fed in a pelleted form, is

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How the feeding trial was conducted. On May 6, 1958, twenty-four Hereford steers with an average starting weight of 550.5 lbs. were randomly allotted into two test groups of twelve steers each. The two groups were placed on adjoining pastures in Woodson County, Kansas.

The entire test ran continuously for 549 days under the supervision of Kansas State University, and covered four feeding periods: pasture, winter, pasture, and finishing.

Feed used during the trial was identical—except the 12 steers in one lot received a plain salt-bonemeal mixture while the steers in the other lot received a mixture of bonemeal and Morton T-M Salt.

The cattle were weighed off pasture on August 1, 1959. Gain was only 8 lbs. per head greater for the cattle fed Morton T-M Salt. However, after a 134 mile trip to the feed lot in Manhattan, both groups were again weighed individually off the truck and the T-M fed cattle averaged 21.7 lbs. more pay weight than the cattle fed plain salt!

The first week in the feed lot the T-M fed steers lost 5 lbs. less than the steers on plain salt. Both groups were put on a 90-day full-feed finishing ration of ground corn, prairie hay and 1 lb. of soybean meal per head daily (containing 10 mgs. of diethylstilbestrol.) After a three week starting period, corn and prairie hay were available at all times on a free choice basis. The one group of steers continued receiving the plain salt-bonemeal mixture and also plain salt, free choice, while the other group continued receiving the Morton T-M Salt-bonemeal mixture and also Morton T-M Salt, free choice.

At the end of the finishing period all cattle were again weighed. The T-M fed steers showed an additional average gain of 23 lbs. *more* than the cattle fed plain salt.

After a 125-mile truck trip to the Kansas City Stock Yards, the cattle were weighed once more and the steers on Morton T-M Salt averaged 11 lbs. per head *more pay weight* than the steers on plain salt!

The cost of feeding Morton T-M Salt, free choice, at the feed lot was 35¢ more per cwt. of gain, with the *total* increased feed cost per head $1.19. But the steers on Morton T-M Salt gained 23 lbs. more during this period than the steers on plain salt and then added another 11 lbs. in pay weight at Kansas City, an average *total gain* of 34 lbs. per head! Comparing the cost of gain with Morton T-M Salt and a conservative selling price per cwt... the feeder is getting back more than $7 for every $1 invested in Morton Trace-Mineralized Salt!

It all adds up to bigger profits for your customers when they feed Morton T-M instead of plain salt: the 8 lbs. gain on pasture—plus the extra 21.7 lbs. in pay weight from pasture to feed lot—and the additional 34 lbs. in favor of the Morton T-M fed cattle from the time they were in feed lot to the day they were weighed out at the stock yards! Customers want important dollar gain differences like these that come from the exclusive formulation of trace minerals and salt available only in Morton T-M Salt. So stock Morton T-M Salt. Order now from your Morton Salesman or write:

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Kansas State University Circular #378 carries a complete report of this feeding trial.

there still a need for a small amount of hay or other coarse roughage for maximum performance by the animal? There are some indications that some hay or straw may help cattle fed a completely pelleted ration.

8. What are the proper levels and ratios of concentrate and roughage feeds to feed to cattle under varying conditions of growth, fattening, reproduction and lactation?

9. Can problems with bloat, founder and other digestive disturbances be completely eliminated with an all pelleted ration for beef cattle?

10. Can scientists find a way for pelleting to improve high concentrate rations anywhere near as much as it improves high roughage rations?

Very little information is available on wafering feeds for beef cattle. What little work has been done indicates possibilities for this method of roughage feeding. Much more research information is needed in this field. Most of the problems cited for pelleting would also apply to wafering.

Pelleting of feeds for beef cattle is definitely of value and on the increase. As engineering developments occur which will make pelleting less costly there will be a greater use of pelleting with beef cattle feeds. There are still many unanswered questions on the pelleting and wafering of feeds for beef cattle. These are discussed in this article and need to be answered before pelleting and wafering of feeds can be fully evaluated for beef cattle feeding. Suffice it to say, however, that an all pelleted ration for beef cattle is now a reality and future research will undoubtedly supply the answers needed for the problems involved in making this method of feeding possible. It should be stressed, however, that pelleting is no substitute for a well balanced ration. The essential nutrients will still need to be contained in the pellet for it to do the job it is intended for.

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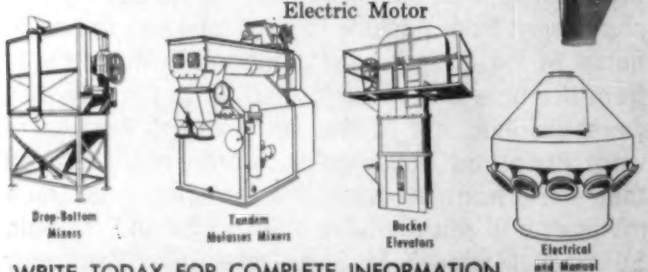

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New Research on Preserving Silage With Antibiotics

By DR. J. M. WING and Dr. C. J. WILCOX
University of Florida

Antibiotics are back in the news. Now they are being used to preserve silage. Only 5 gm. per ton are required so the cost is less than for most other silage stimulants.

This new idea was tried first in 1959. Dr. L. L. Russoff and his coworkers at Louisiana State reported very favorable results with zinc bacitracin as a preservative for white clover and the Florida station confirmed their observations using oats silage.

Recent tests have shown that other antibiotics also are promising silage preservatives. Pearl millet was the forage used in recent Florida tests because previously trials showed it to be especially difficult to preserve without additives. The treatments included 5 gm. per ton of six separate antibiotics. Each additive was dispersed in water and sprinkled over the forage as it came from the field. Self-unloading wagons completed the mixing during unloading. Content of TDN and digestible crude proteins in the silages varied with treatments as follows: zinc bacitracin, 61.1 and 6.3; chlortetracycline (Aureomycin), 62.4 and 8.8; oleandomycin, 59.4 and 7.4; Streptomycin, 66.3 and 7.2; oxytetracycline (terramycin), 65.2 and 7.5, and procaine penicillin, 66.8 and 8.6.

Acidity of all silages was good, the range in pH was 4.0 (oxytetracycline) to 5.2 (chlortetracycline). Activity of desirable bacteria appeared to be moderate with slightly less growth in the oleandomycin silage than in silages with other treatments. There was no evidence of more than a trace of undesirable bacterial activity in any silage, though that treated with chlortetracycline had slightly more protein splitting bacteria than any of the others.

Antibiotic activity was noted in milk from one of four cows fed silage treated with oleandomycin. All other milk samples were negative to test.

The palatability appeared to vary considerably judging from the rate at which heifers consumed the silages when it was offered free choice as the only feed. The average amounts eaten per head daily per 1,000 lb. of body weight varied with treatments as follows: zinc bacitracin, 93 lb.; chlortetracycline, 61; oleandomycin, 102; Streptomycin, 89; oxytetracycline, 67, and procain penicillin, 103 lb.

Differences in odor were noticeable but none were offensive. Considerable difference should be expected among the effects of various antibiotics as silage stimulants. It appears that many of them will be satisfactory though more research is needed.

South Carolina's Grain Needs for Poultry Told

CLEMSON, S.C.—J. B. Cooper, poultryman at Clemson College, recently completed a study determining the amounts of feedstuffs required to feed the chickens and turkeys produced each year in South Carolina.

Basing his figures on average yields per acre, Professor Cooper showed that 350,000 acres of land are needed to produce the corn consumed by poultry. Some 129,000 acres are needed to grow the soybeans to produce the soybean oil meal.

Here are the amounts of feedstuffs required: 9,800,000 bu. of corn, 129 million bushels of soybeans and 35 million pounds of meat scraps and meat by-products.

PREDICT DISPOSABLE FRYING PANS

TUCSON, ARIZ. — Now they're thinking of disposable "frying pans" complete with eggs inside, so that all you have to do is cook the eggs and throw the "pan" away. Dishwashing would be gone.

These disposable liners for frying eggs are but one of many contemplated new egg products which may go on the market reasonably soon, a home economist revealed in Arizona recently.

"The poultry industry is doing extensive research to try to come up with new and better ways of preparing poultry products," Miss Bernice Stilwell, home economist of the Poultry and Egg National Board, Chicago, told Arizonans.

Eggs, in fried or scrambled form, will come in a disposable liner so that the eggs can be cooked in the container and thrown away without any pans to wash.

Some other new items contemplated include eggnog cubes; egg whites in an aerosol can; eggs in cereals; an egg sandwich spread in a jar; cooked but shelled eggs; an egg bar with semi-dried yolks that could be broken off into sections like chocolate bars; "bird dogs," which are hot dogs made from chicken; chicken baloney; colored Easter eggs; turkey sausage and turkey roll.

"The frozen eggnog cubes could be dropped into milk so that there would be eggnog available year round," Miss Stilwell said.

Help Fight TB

Use Christmas Seals

Herman Nagel's Trace Mineral CONCENTRATE

Where only trace minerals are to be added, Herman Nagel's Trace Mineral Concentrate supplies all eight, in correct balance.

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Merry Christmas

Holiday greetings to all our associates, distributors, dealers and suppliers. May the new year be a happy and prosperous one for each and every one of you. From the makers of Omalass, Scotch O Lass and Dynasol.

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Marine Building
Houston, Texas

POULTRY INDUSTRY PANELISTS—College and university students participating in the 37th annual inter-collegiate poultry judging contest in Chicago learned of the industry's many employment opportunities from a panel of four industry leaders. Panelists were (left to right): Norman R. Clizer, Allied Mills, Inc., poultry feed sales coordinator; Lloyd H. Geil, Poultry and Egg National Board general manager; Richard L. Kathe, American Feed Manufacturers Assn. director of public relations, and Frank Wollney, Institute of American Poultry Industries field service director. Mr. Clizer served as panel moderator.

FEEDSTUFFS
LEADER IN THE FIELD

WHY DOES ANYONE

BUY HOG FEED?

There's only one real reason why any swine producer should buy feed. That's so that he can get greater daily gains for less cost. It stands to reason, therefore that you or any other feed manufacturer who offers quicker gains and greater feed efficiency will get more business.

So think about this. There's a raft of scientific data that points out the possibility of important savings for swine producers by the use of Protamone thyroprotein in feed throughout the life cycle of swine.

1. Lactating Sows—200 grams Protamone per ton during entire lactation period to wean larger litters of heavier pigs.
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3. Growing-Finishing—60 to 80 grams Protamone per ton for accelerated growth rate, improved feed efficiency, better market finish.

If you want thorough scientific documentation from researchers such as Johnson, Catron, Turner, Peo, Reineke, Hays, Speer, and Hudman . . . just drop us a note and we'll shoot it right back.

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4722 BROADWAY • KANSAS CITY, MISSOURI

Colorado Firm Makes Pellets from Beet Pulp For Feeding Livestock

ORDWAY, COLO.—Beet pulp from the American Crystal Sugar Co. factory in Rocky Ford, Colo., is being processed into pellets by Simpson & Co., Colorado Springs. The actual processing is being done under contract by the Archer-Daniels-Midland dehydrating plant in Ordway.

The plant has been converted from dehydrating alfalfa to manufacturing pellets which combine molasses with dried beet pulp to make a palatable feed for livestock.

The plant usually operates at capacity only four months during the year, according to Reuger Hudson, Ordway, manager of the plant.

Simpson & Co. recently signed a contract with American Stores in Pueblo to supply molasses-beet pellets for livestock feeding operations of the stores from Devine to Lamar. Crowley and Otero County feeders have been buying the pellets since production started in Ordway.

Twenty-five tons of molasses-beet pellets are produced daily during the 12 hours the dehydrating plant is in operation.

American Crystal Sugar Co. also produces pellets, using equipment obtained through the purchase of the Holly Sugar Corp. in 1959.

Archer-Daniels-Midland began making beet pellets after completing a successful alfalfa dehydrating season, despite dry weather.

Nutritionist Suggests Causes of 'White' Yolks

DURHAM, N.H.—A combination of feeding a high level of vitamin A and differences in the metabolism of layers has been suggested by Dr. R. C. Ringrose, nutritionist in the poultry science department of the University of New Hampshire, as being involved in the appearance of eggs with yolks lacking the normal yellow pigment.

However, he notes that this is a possibility only, and is "worthy of close checking by those who have an opportunity to do so."

Dr. Ringrose comments in a recent University of New Hampshire bulletin that, according to findings to date, nutrition is the only factor affecting egg yolk color. And he follows that leading statement with several questions:

"Since our feeds now contain more corn than ever before, along with alfalfa, how can a white yolk (not actually pure white, but much lighter than yolks of normal pigmentation) be produced?

"Has the affected flock been fed a high level of vitamin A as a treatment for capillaria worms?"

Dr. Ringrose says it is known that high levels of vitamin A depress pigment deposition in shanks, skin and egg yolk. And it is often reported that flocks producing "white" yolks have a problem of capillaria worm infection.

He reasons, "Since feeding of a high level of vitamin A is the best available treatment for capillaria infection, it is possible that vitamin A is involved in the production of white egg yolks. But, since all eggs from an affected flock do not have white yolks, something more than vitamin A is involved."

Dr. Ringrose believes varying metabolism may be a factor, too.

Furthermore, he holds the opinion that three to four weeks of high level feeding of vitamin A for capillaria worms is not so likely to cause "white" yolks as is continued feeding of a high level of vitamin A.

"White" yolks are undesirable because eggs which have them are rejected by the consumer.

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NEW BIG PRIZES ON ALL PRODUCTS

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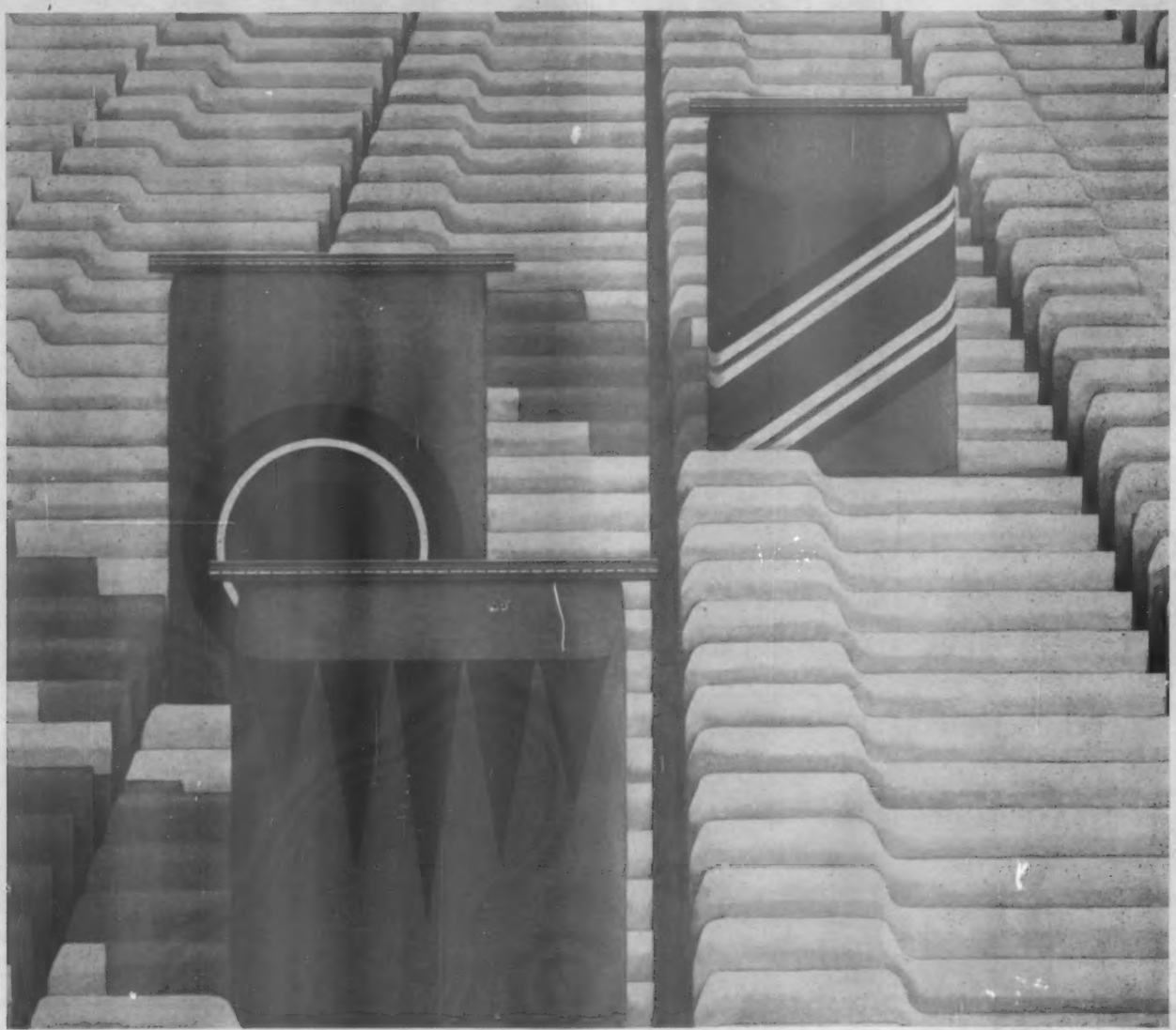
TENNESSEE SPEAKERS—Appearing on the program of the annual convention of the Tennessee Feed Manufacturers Assn. held recently in Nashville were the following, left to right: First photo—J. G. Johnston, Security Mills, Inc., Knoxville; Clyde Cathey, director, Division of Feeds, Seeds and Fertilizers, Tennessee Department of Agriculture, and W. D. Hudson, Jr., Cumberland Milling Co., Clarksville; second photo—Clyde Cathey; Eugene Holman, state chemist, Tennessee Department of Agriculture; Samuel Alfend, director, Cincinnati district, Food & Drug Administration, and Glenn Mowery, principal chemist, Tennessee Department of Agriculture, and third photo—Dr. William D. Bishop, leader, agriculture program, Agricultural Extension Service, University of Tennessee; Howard Werthan, vice president, Werthan Bag Corp., Nashville; Dr. H. Randall Bryant, technical director, southeastern region, American Cyanamid Co., Atlanta; Rudy Langston, president, Langston Bag Co., Memphis.



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St. Regis® has assembled the world's largest library of bag designs—successful selling designs created over the years to suit the particular marketing problems of the feed industry.

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DOUBLE YOUR TONNAGE TRIPLE YOUR PROFITS

What others have done, you can also do!

For the benefit of dealers in other areas, we would like to relate a few facts. Our company took on the complete Honegger franchise the last of April, 1959. Since that time, we have seen our sales more than double. We heartily recommend the Honegger franchise on the basis of our own company sales records.

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CALF PRESENTATION—Photo shows presentation of the pure-bred Holstein to Ralph J. Lang, Wheelersburg, Ohio dairyman, after he registered as the half-millionth visitor at the Ralston Purina research farm, Gray Summit, Mo. Left to right, Raymond E. Rowland, company president, who made the presentation; John C. Thompson, manager of dairy research for Purina; Mr. and Mrs. Lang and J. Fred McLinmore, Ohio division sales manager for Purina.

Half-Millionth Research Farm Visitor Honored

GRAY SUMMIT, MO.—Ralph J. Lang, Wheelersburg, Ohio dairyman, received a pure-bred Holstein heifer from the Ralston Purina research farm here after he registered as the farm's half-millionth visitor.

Mr. Lang was among a group of 494 farmers and feed dealers from Ohio, Michigan and Indiana visiting the farm. His calf came from the farm's research herd.

Raymond E. Rowland, company president, made the calf presentation at the Purina research farm. The heifer, from top milk producing bloodlines, was later delivered to Mr. Lang's farm in a Purina research farm truck.

The surprise presentation came when the running tabulation of visitors covering all 32 years of organized farm trips showed Mr. Lang to be the half-millionth visitor.

Also honored were the 499,999th visitor and the 500,001st visitor. They were Robert V. Snyder, a livestock farmer from Wilmington, Ohio, and Mrs. Jess Yeager of Camden, Ind., wife of a farmer. Each received a 30 lb. turkey from the Purina farm.

This is the 32nd year that U.S. and Canada farmers and feed dealers have organized in local groups to make trips to the Ralston Purina research farm.

Company officials say the 778-acre Ralston Purina research farm is one of the largest and oldest commercial research farms in the world.

In making the awards, Mr. Rowland said, "The fact that so many farmers and feeders from all over the country have taken the time and money to come to the Purina research farm encourages us to believe these farm trips have performed a very valuable service to feeders of livestock and poultry. It also emphasizes to us our responsibility to continue to provide products and services that will allow feeders to show top profits.

KENT FEED TRUCK WINNERS—Truck winners and Kent Feed dealers are pictured here with three Chevrolet trucks given away in the Kent Feeds "Pick the Pig" contest held Tuesday, Nov. 1 in Muscatine, Iowa. Left to right, Mr. and Mrs. Melvin Mundt, Clutier Grain & Feed; Mrs. Bob Martin, Mrs. L. W. Hamann and Mr. Hamann, winner; Robert Martin, Clutier Grain & Feed, and Kenneth Mente, winner; Mrs. Kenneth Mente, Mrs. Robert Reeve, Robert Reeve, Reeve Feed Service; Mr. and Mrs. Vernon Hartzler, Hartzler Feed Service; Mrs. Henry Beachy and Henry Beachy, winner.

Trucks, TV's Awarded In Kent Feeds' Contest

MUSCATINE, IOWA—Guests of Kent Feeds recently in Muscatine, Iowa, were winners of new Chevrolet pickup trucks and Admiral Portable TV sets given away in the Kent "Pick the Pig" contest.

The Muscatine gathering was the culmination of a contest conducted by Kent Feeds during August and September. Twenty pigs, farrowed the week of April 10, were fed on Kent programs at the Kent Research Farm in Muscatine, Iowa.

Kent dealers supplied entry blanks for their customers who were asked to select which of the 20 pigs would be the heaviest by Sept. 15, the total weight of the 20 pigs and their feed efficiency.

The top three winners in the contest were awarded Chevrolet pickup trucks and the next 15 received Admiral TV sets.

Two-hundred-and-ninety-three prizes were awarded to over 250,000 contest entrants. Thousands of interested people visited the Kent Research Farm during the contest period to check the progress of the much publicized pigs.

NEW POULTRY LAB

ATLANTA, GA.—The architectural firm of Toombs, Amisano and Well has been named to design the new $950,000 poultry research laboratory for the University of Georgia at Athens. The building will be completed by June, 1961, and will be used to conduct research on poultry diseases and methods of improving poultry in general.

Texas Feedlots Use High Energy Feeds

SNYDER, TEXAS — High energy feeds are now being used in most of the larger feedlots in Texas. At the Ezell-Key Grain Co. near here, the steers on high grain rations are making faster and more economical gains, too, company officials report.

"Our finishing rations contain 72½% milo," says John Jarrell, vice president of the company. "The total percentage of concentrates is 85%. Though the high grain feeds get better gains, we've found it is not practical to go above 72½% with maize. With barley, which has more fiber, the percentage could be raised."

Mr. Jarrell has also found that cattle can be pushed too fast. His company has obtained gains of 3 lb. per day, but is now aiming for an animal gain of 2.7 to 2.8 lb. daily.

"Since ours is a custom feedlot," he explains, "we must get the most gains per pound of feed, providing the feeding period is not prolonged too much. The 2.7 to 2.8 lb. increase is made on from 8 to 8.69 lb. of feed. When we pushed to 3 lb., the feed intake was considerably higher in proportion."

Firms Incorporated

LITTLE ROCK, ARK.—The Farmers Supply Co., Inc., Marriana, Ark., has filed articles of incorporation with the Arkansas Secretary of State to operate a farm supply business.

The company was authorized 1,000 shares of $100 stock, and listed $400 as its paid-in capital. Incorporators were J. F. and Esther See, Marriana, and L. F. and Wilhelmina See, Cabot, Ark. J. F. See was named the firm's resident agent.

The Waite Feed and Farm Supply, Inc., Berryville, Ark., has also filed articles of incorporation with the Arkansas Secretary of State to operate a wholesale and retail livestock and poultry business.

The firm was authorized 2,000 shares of stock valued at $50 a share. It listed $10,500 in paid-in stock. Incorporators were Norris Waite, Milo Robinette and Delphia High, all of Berryville. Mr. Waite was named the corporation's agent.

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Get it in the Midwest from
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"Volume up 25%, grain quality tops, operating cost at a minimum, thanks to our Shanzer drier. Service from start to finish was outstanding, and we have found their people exceptionally well schooled in every aspect of equipment and overall drying operations."

—Says, Donald M. Hartz, Mgr. Maynard Co-operative Company, Maynard, Iowa

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Will the **vitamin A** reach where it's aimed?

You never know exactly how long it takes for a batch of feed to get from your mixer to the eating end of a bird. Or what can happen to it on the way. Or to vitamin A potency.

If the vitamin A doesn't all get there, the chick and the grower get shortchanged. This contingency you naturally wish to avoid.

The best way to deliver vitamin A to its proper destination in the organs and tissues of a chick is to send it in a form inherently more stable—the palmitate ester made by DPi.

Not only that, but it should be enrobed in a bead of special gelatin that's impervious to the chemical assault of minerals and moisture or the physical abuse of pelleting.

This is what we do with our product known as *PGB-250 Dry Vitamin A*. The golden spheres contain 250,000 USP vitamin A units per gram. Lower potency blends are PGB-10, PGB-20 and PGB-30, containing 10,000, 20,000 and 30,000 units respectively.

We have a booklet that goes into a great of detail on the several things that make *PGB-250 Dry Vitamin A* such a good buy. Write for it. ***Distillation Products Industries,*** Rochester 3, N. Y. Sales offices: New York and Chicago Charles Albert Smith Limited, Montreal and Toronto.

leaders in research and production of vitamins A and E

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WORTH LOOKING INTO

NEW PRODUCTS • NEW SERVICE • NEW LITERATURE

DESCRIPTIONS OF NEW AND IMPROVED PRODUCTS AND SERVICES PROVIDED BY MANUFACTURERS AND SUPPLIERS ARE PRESENTED IN BRIEF FORM. FOR ADDITIONAL INFORMATION, PLEASE USE THE ACCOMPANYING COUPON.

No. 7226—Rotary Feeder

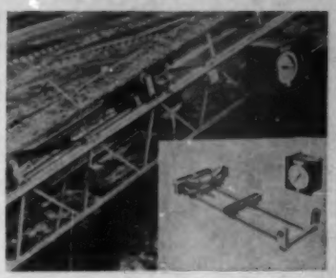
A rotary feeder for delivering and controlling the feed rate of dry, pulverized and granular materials into high pressure pneumatic conveying systems is described and illustrated in a new two-page, two-color bulletin now being offered by the Fuller Co.

Called the "Dual Air-Inlet DA Feeder," it is Fuller's latest addition to the field of dense stream conveying. It delivers into low air volume, high pressure systems with efficiencies as high as 98.4%. The bulletin includes a photograph, dimensioned drawings and specifications for all sizes of DA feeders. For a copy of this bulletin, check No. 7226 on the coupon and mail.

No. 7224—Automatic Conveyor Scale

A new conveyor scale which automatically weighs, measures, meters and/or controls the flow of bulk materials on conveyor belts has been introduced by Ramsey Engineering Co., St. Paul, Minn.

Called the Vey-R-Weigh, it is designed for control applications in any operation where bulk materials are transported on any type of conveyor gallery. The unit, said to be ruggedly constructed to take large overloads without injury, is adaptable to many measurement, control and recording operations such as a continuous product inventory, rationing or blending of additives, segregation control, bulk determination, grade or assay determination, or the control of feed rates to processing equipment.



Vey-R-Weigh consists of a conveyor-mounted idler-supported carriage installed to support one idler in the conveyor which weighs the belt and material carried on that idler, and a remote indicating and recording instrument which may be mounted in any convenient location up to 500 ft. from the carriage.

Convenient adjustments for zero and calibration are contained within the instrument, and a range of full scale capacities from 8.6 to 250 lb. per ft. of belt is available for standard models. For complete details, check No. 7224 on the coupon and mail.

No. 7227—Attrition Mills

The availability of a 12-page technical article on the subject of the attrition mill as a size reduction unit is announced by Sprout, Waldron & Co., Inc.

It covers construction details, applications, horsepower requirements, capacity comparison charts, operating cost comparisons and other information. For a copy of this article, check No. 7227 on the coupon and mail.

No. 7225—Mobile Milling Training

"Long on Profits" is the subject of a new bulletin which outlines the training school program in mobile feed milling management given operators by Seco, Inc.

The program is designed to extend practical and advanced-type guidance. Purchasers of SECO mobile mills send their operators to the three-day training program, which features feed marketing, mechanical use of mobile equipment, management of the operation and a session on route setups and accounting. Classes range in size from 14 to 20 persons. For a copy of the new bulletin, check No. 7225 on the coupon and mail.

No. 7228—New Equipment Leasing Plan

Feed and milling companies can now lease equipment for terms as long as six to 12 years under a new plan announced by the Nationwide Leasing Co.

The company said this is the first such plan ever offered. Firms possessing a tangible net worth of $1 million are eligible for 6-to-12 year leases for as little as $25,000 worth of equipment. There is no maximum. This plan would free companies from the need to tap long-term debt or equity funds for the smaller amounts involved in acquiring equipment.

The new plan features level quarterly payments for the term of the lease. No security deposit is required. To qualify for this extra-long-lease, companies must have a tangible net worth of at least $1 million and a five-year record of profitable operations, and desired equipment must have a depreciable life greater than the lease term. For additional information, check No. 7228 on the coupon and mail.

No. 7229—New Mixer

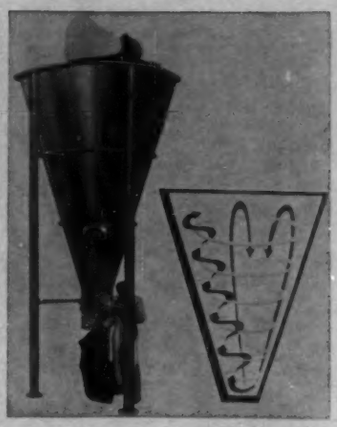
The J. H. Day Co., division of the Cleveland Automatic Machine Co., announces it has been granted the exclusive license by NautaMix N.V. of Haarlem, Holland, to manufacture and sell the Nauta Mixer in the U.S. and Canada.

This newly designed mixer has applications in the processing of livestock, cattle and poultry feeds, prepared cereals and similar products where fast, highly accurate mixing of ingredients is essential, the company said.

It is reported that the mixer employs a new, three-way mixing action "which provides more accurate control of materials being mixed, gets the job done faster and reduces heat generation to absolute minimum."

Mixing action is accomplished by a rotating screw positioned along the wall of the conical container. At the same time the screw revolves, it also orbits around the inside wall, resulting in vertical and horizontal cross-currents throughout the mixer.

The material is mixed and spiraled



upward by the revolving screw and the orbiting action of the screw moves the material in a large, second spiral. A third mixing action results after the material is lifted by the screw. All three mixing actions are simultaneous, with a converging effect on the bottom of the cone.

"In three minutes, every particle of material is forced through all three mixing actions to bring about highly accurate dispersion of one part in 10,000 and more," the announcement said.

The mixer will start under full load and a five h.p. motor can mix a 4,000 lb. batch. For additional information, check No. 7229 on the coupon and mail.

Also Available

The following new products have been described in previous issues of Feedstuffs and information about them may still be obtained by jotting the appropriate number of the coupon and forwarding it to Feedstuffs.

No. 7162—Grain trailer with belt conveyor, The Wilson Trailer Co.

No. 7163—Roll-to-back nest, Keen Manufacturing Corp.

No. 7164—5-ton vertical mixer, Jacobson Machine Works.

No. 7165 — Storage tank heating coils, Dean Products, Inc.

No. 7166 — Water-dispersible vitamins, Merck & Co., Inc.

No. 7167 — Hopper-level control, James Manufacturing Co.

No. 7168—Fork truck attachment, Clark Equipment Co.

No. 7169 — Intermediate range checkweigher, Toledo Scale Corp.

No. 7170—Valve bag packer, St. Regis Paper Co.

No. 7171—Sewing pedestal, Richardson Scale Co.

No. 7172—New coccidiostat, Merck & Co., Inc.

No. 7173—Grain storage equipment, Walsh Manufacturing Co.

No. 7174—Auger molasses mixer, Pacific Molasses Co.

No. 7175—Grain dryer, Figley Cox, Inc.

No. 7176—Auto advertising device, Travelads, Inc.

No. 7177—Gravity powered grain spreader, Habco Manufacturing Co.

No. 7178—Motion safety switch, Fuller Co.

No. 7179—Processing equipment catalog, Edw. Renneburg & Sons Co.

No. 7180—Feed analysis ingredient table, Stabilized Vitamins, Inc.

No. 7181—Pelleting data sheets, Baroid Chemicals, Inc.

No. 7182—Grate magnet brochure, Eriez Manufacturing Co.

No. 7183—Screw conveyor bulletin, Sprout, Waldron & Co., Inc.

No. 7184—Fat, oil applicator, Lingel Fat & Oil Applicator Co.

Send me information on the items marked:

- ☐ No. 7224—Automatic Conveyor Scale
- ☐ No. 7225—Mobile Milling Training
- ☐ No. 7226—Rotary Feeder
- ☐ No. 7227—Attrition Mills
- ☐ No. 7228—New Equipment Leasing Plan
- ☐ No. 7229—New Mixer

Others (list numbers) .....

NAME .....

COMPANY .....

ADDRESS .....

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IRRADIATED DRY YEAST
RICH IN VITAMIN D FOR FOUR-FOOTED ANIMALS

No. 7185—Gravity feeder, Thayer Scale Corp.

No. 7186—Egg producing program, Hess & Clark.

No. 7187—Rolling mill attachment, Barnard & Leas Manufacturing Co., Inc.

No. 7189—Expansion program, Sweet Manufacturing Co.

No. 7190—Expanded hammermill line, Seco, Inc.

No. 7191—Grain cleaning machine, Ross Manufacturing & Sales Co.

No. 7192—Vaccine administering method, Dorn & Mitchell Laboratories, Inc.

No. 7193—Mold control bulletin, Monsanto Chemical Co.

No. 7194—Detector catalog, Flo-Tronics, Inc.

No. 7195—Hopper railroad car, Kurth Malting Co. and Pullman Standard.

No. 7196—Revolver feeder bulletin, Fuller Co.

No. 7197—New package size, Chas. Pfizer & Co., Inc.

No. 7198—Hopper scale bulletin, Richardson Scale Co.

No. 7199—Molasses in silage described, Pacific Molasses Co.

No. 7200—Hog feeding system, Brower Manufacturing Co.

No. 7201—Poultry vaccine catalog, Associated Laboratories, Inc.

No. 7202—Egg cleaning machine, National Ideal Co.

No. 7203—Drive unit, The Lima Electric Motor Co.

No. 7204—Mixer bulletin, Sprout, Waldron & Co., Inc.

No. 7205—Range block press, A. E. Johnson & Sons

No. 7206—Sewing head, Union Special Machine Co.

No. 7207—Poultry medications, Vineland Poultry Laboratories

No. 7208—Bird repellent, Seedburo Equipment Co.

No. 7209—No-Spill Device, The Frank G. Hough Co.

No. 7210—Combination bag, Raymond Bag Corp.

No. 7211—Grain roller mill, Roskamp Huller Manufacturing Co., Inc.

No. 7212—Dog food flavor, Flavor Corporation of America.

No. 7213—Mineral mixes, Corn King Co.

No. 7214—Bulk truck, Productive Acres Mfg. Co.

No. 7215—Turkey disease bulletin, Dr. Salsbury's Laboratories.

No. 7216—Bag closure tape, The West Virginia Pulp & Paper Co.

No. 7217—Enclosed vibrating conveyor, The Cleveland Vibrator Co.

No. 7218—Poultry breeding bulletin, Indiana Farm Bureau Cooperative Assn.

No. 7219—Pox vaccine bulletin, The American Scientific Laboratories, Inc.

No. 7220—Rodenticide, Ferret Laboratories.

No. 7221—Bulk pneumatic trailer, Heil Co.

No. 7222—Dry form of antioxidant, Monsanto Chemical Co.

No. 7223—Safety training course, National Safety Council.

Poultry Industry Group Lists Recommendations For USDA News Unit

ATLANTA, GA.—The USDA Market News Service has been advised by members of the poultry industry to keep market quotations on a live-market basis, and that quotations be on the basis of farm prices in the house, or a uniform basis with other areas.

These two main recommendations came after the USDA sought recommendations for improving the department's market price service.

Meeting in Atlanta, approximately 40 members of the poultry industry listed for the department their likes and dislikes about the service.

Another recommendation was that the department report birds when sold on a condemned deducted basis and do away with terminal market prices as they are now sent out.

The daily report was commended and the recommendation was that this service be continued. It was suggested that the market news be kept on a state basis with separate reports from each state. A further suggestion was that quotations on a "mostly" basis be eliminated.

Much discussion followed on the subject of intra-company transfers and how they should be handled. The chairman ruled, however, that the market reporter should be the one to make this decision.

Standardization of egg grades and weight specifications throughout the country were recommended, plus an expansion of operations in the South to include some of the larger marketing areas.

In view of the increasing number of eggs bound for foreign countries from the South, the department was told there was some need for information on export prices, too.

Whitmoyer Labs Holds 80th Poultry School

MYERSTOWN, PA.—Fourteen states and Canada were represented at the 80th session of the Whitmoyer Poultry Health and Nutrition School held recently at Myerstown, headquarters of Whitmoyer Laboratories, Inc.

The three-day study course was attended by feed sales and servicemen, hatcherymen and other poultry and feed industry people. Subjects studied included nutrition, management, external and internal parasites, bacteriology and disease recognition and control.

The next Whitmoyer school is planned for March, 1961. Any one interested in attending can get complete information by writing Dr. J. R. Wiley, Whitmoyer Laboratories, Inc., Myerstown, Pa.

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Costs Said to Offset Hay Pelleting Value For Beef Ration

WOOSTER, OHIO—Advantages of feeding pelleted hay with ground ear corn to fattening cattle have not been sufficient to pay the cost of grinding and pelleting, according to experiments conducted at the Ohio Agricultural Experiment Station here.

Under some conditions other advantages of pelleting such as more compact storage, ease of handling and adaptability to mechanized feeding may partially justify the cost of pelleting, according to Dr. Earle W. Klosterman.

The experimental work was undertaken after it had been shown that pelleted hay has a higher value than long or chopped hay for wintering beef cattle on an all-hay ration. The greater gains had come primarily from an increased intake with pellet feeding. Experiments with all-pelleted rations for fattening cattle indicated the greatest value for pelleting to be with rations high in roughage. Research was undertaken at Ohio to determine the value of pelleting only the hay portion of a fattening type ration for beef cattle.

Dr. Klosterman tells of work in 1956-57 when two lots of steers were self-fed ground ear corn. In addition, one lot was self-fed long alfalfa hay and the other the same hay which was finely ground and pelleted. Average daily gains of these two groups of calves were identical for the 252 days they were on feed and both lots graded average choice when slaughtered.

When the cattle had free access to ground ear corn in a self-feeder pelleting the hay did not increase the amount eaten. There was some waste when the hay was fed long; this did not occur when it was pelleted. This saving, however, was not adequate to pay the cost of pelleting, according to Dr. Klosterman.

No Savings on Gain

In another experiment three lots of steers were self-fed various mixtures of ground ear corn and pelleted alfalfa hay. Steers fed a mixture of three parts ground ear corn to one of hay gained slightly faster than those fed two parts corn to one of hay. Average daily gains were the same when equal parts or two parts corn to one of hay were fed. Feeding larger amounts of pelleted alfalfa reduced the amount of corn required per unit of gain. However, the expense of grinding and pelleting the hay made its cost much the same as corn so there was no saving in cost per cwt. gain.

In a third experiment six lots of steers were fed in 1958-59. Two each were fed on long; finely ground, and pelleted finely ground hay. The ground hay was ground to the same degree of fineness as that which was pelleted. These three forms of hay were fed with an equal weight of ground ear corn or with two parts corn to one of hay. These steers were fed for 224 days. Gains between lots were somewhat variable but there was no real difference in performance of calves fed either equal parts of hay and corn or two parts corn to one part hay. Steers fed long hay gained nearly as fast as those fed pelleted hay. Gains were slightly higher with ground hay.

Carcass grades of steers fed long hay averaged one third of a grade lower than those fed either ground hay or pelleted hay.

THE FIRST—Seco, Inc., Goodlettsville, Tenn., has just delivered its first Seco Mobile "Pushbutton" Feed Mill sold in the Canadian province of Ontario. In the photo, handing the keys for the new Seco unit to Alex Cain, owner of Cain's Mobile Feed Service, Sault Ste. Marie, is Don Schrader, Seco sales manager. Seco management said it is planning an expanded sales program in Canada for the mobile mill, which has automatic control of the feed table and hammermill.

Nutrena Names Two

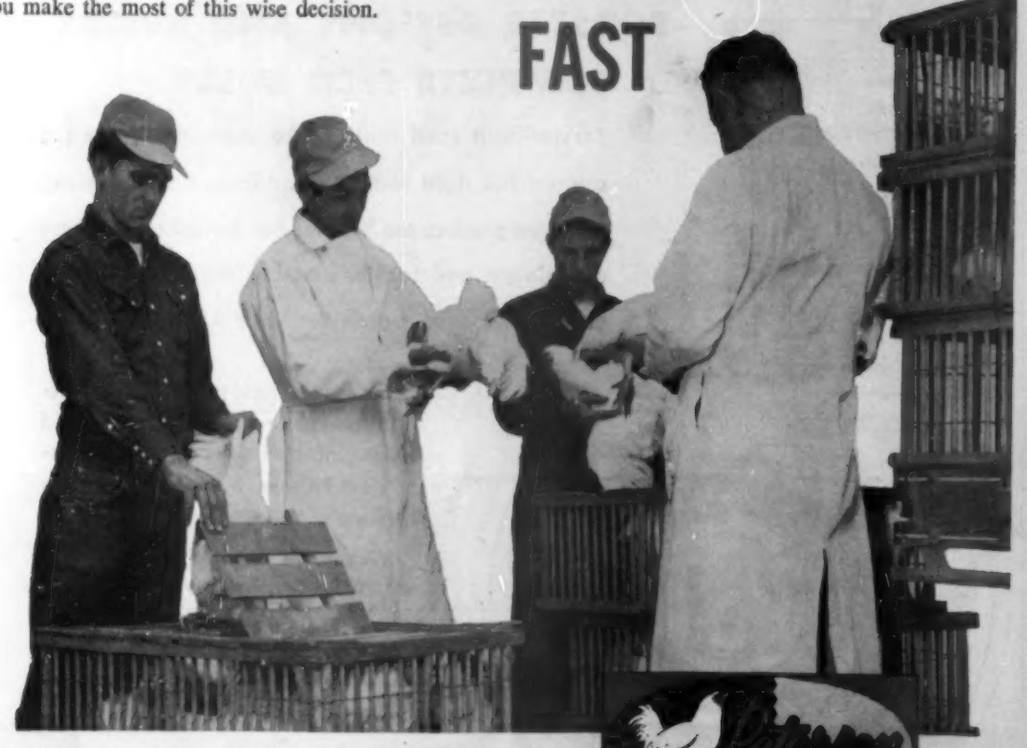
MINNEAPOLIS — Nutrena Feeds has announced the appointment of two additions to its feed sales staffs in Lincoln, Neb., and Memphis, Tenn.

James C. Makens, Wheat Ridge, Colo., has been named to the Nutrena Feeds sales staff at Lincoln, according to D. F. Broekemeier, district sales manager. He will work in Nutrena's sales and manufacturing office there, servicing company livestock and poultry systems to farmers and ranchers in eastern Nebraska.

Charles E. Darnell, formerly of the University of Tennessee animal husbandry staff, has been named to the Nutrena sales staff at Memphis, Tenn., J. T. Helbig, district sales manager, announced. Mr. Darnell will service Nutrena livestock and poultry systems to farmers in eastern Tennessee and western Arkansas.

The calibre of your broiler crosses depends on many factors, *but none is more important than the calibre of the males you select at housing time.* Does your present male regularly provide the numbers you need for real pressure selection? If you're a Peterson customer, the answer is surely, "Yes". In fact, Peterson Males live so well, even under difficult conditions, that our customers regularly select from close to the number they started. They don't "cull" their males . . . they select, from a very good group, the individuals most outstanding for vigor and fast early growth. No wonder Peterson Crosses are lowering the cost per pound of broiler meat . . . no wonder so many key broiler men are switching to Peterson. Have you? Even if you're satisfied with your present male, why not play safe and discover the difference in Peterson cockerels at the same time? Split your next flock and mate half with today's Peterson Male. Your Peterson Representative will be happy to help you make the most of this wise decision.

AT HOUSING TIME IT'S EASY TO SEE WHY PETERSON MALES ARE GAINING FAST



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Dr. Paul R. Lindenmaier

Dr. T. O. McMillan

Dr. E. F. Waller

Dr. J. K. Weiss

Dr. W. Williams

Dr. J. K. Krum

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Convention Calendar

Jan. 4—California Egg Month Kick-off Luncheon; Statler-Hilton Hotel, Los Angeles; sec., California Egg Council, Willard Smith, 3304 N. Main Ave., Baldwin Park.

Jan. 4-6—National Turkey Federation; Conrad Hilton Hotel, Chicago, Ill.; sec., M. C. Small, P.O. Box 69, Mt. Morris, Ill.

Jan. 5—California Egg Month Kick-off Luncheon; Sheraton-Palace Hotel, San Francisco; sec., California Egg Council, Willard Smith, 3304 N. Main Ave., Baldwin Park

Jan. 9-10—Kansas Formula Feed Conference; Umberger Hall, Kansas Prof. T. B. Avery, Poultry Husbandry Dept., W. Waters Hall.

Jan. 12-13—Michigan Feed & Grain Dealers Assn.; Michigan State University, Kellogg Center; sec., Nevel Pearson, P.O. Box 472, East Lansing.

Jan. 13-14—Florida State Poultry Producers Assn.; Cherry Plaza Hotel, Orlando, Fla.; chm., Wilfred D. Hedges, 227 Blossom Lane, Winter Park, Fla.

Jan. 15-17—Indiana Grain & Feed Dealers Assn.; Claypool Hotel, Indianapolis; sec., Fred K. Sale, 600 Board of Trade Bldg., Indianapolis 4.

Jan. 16-17—Northwest Retail Feed Assn.; Hotel Pick-Nicollet, Minneapolis; sec., W. D. Flemming, 112 Grain Exchange Bldg., Minneapolis, Minn.

Jan. 23-25—Farmers Grain Dealers Assn.; Civic Memorial Auditorium, Fargo, N.D.; sec., Lloyd C. Hanson, 513 Black Bldg., Fargo.

Jan. 23-25—Southeastern Poultry & Egg Assn.; Municipal Auditorium, Atlanta, Ga.; sec., Harold E. Ford, 235 E. Ponce de Leon Ave., Decatur, Ga.; for reservations: Atlanta Convention Bureau, Rhodes-Haverty Bldg., Atlanta.

Jan. 27—Missouri Turkey Day; University of Missouri, Columbia; E. M. Funk, sec., Missouri Poultry Improvement Assn., Poultry Bldg., Box 568, Columbia.

Jan. 31-Feb. 1—Illinois Agricultural Industries Forum; University of Illinois, Urbana; Department of Agricultural Economics, 305 Mumford Hall.

Jan. 31-Feb. 1—Hoosier Turkey Trot; Purdue Memorial Union, Purdue University, Lafayette, Ind.; John N. Howell, Turkey Department, Indiana State Poultry Assn., Poultry Bldg., Purdue University.

Feb. 1-2—Illinois Nutrition Conference; University of Illinois, Urbana; chm., E. E. Hatfield, Department of Animal Science.

Feb. 1-2—New Hampshire Poultry Health Conference; Memorial Union Bldg., Durham; sponsored by Department of Poultry Science, University of New Hampshire; Prof. W. C. Skoglund, Poultry Science Dept.

Feb. 2—Beef Cattle Study Day; University of Arkansas Agricultural Experiment Station, Fayetteville.

Feb. 2-3—Oregon Animal Nutrition Conference; Withycomb Hall, Oregon State College, Corvallis.

Feb. 3-4—Minnesota Turkey Growers Assn.; Leamington Hotel, Minneapolis; sec., Roy Munson, 2200 University Ave., St. Paul, Minn.

Feb. 6-7—Montana Nutrition Conference; Montana State College, Bozeman; chm., Dr. O. O. Thomas, Animal Industry and Range Management Dept.

Feb. 7-10—American Dehydrators Assn.; Jung Hotel, New Orleans, La.; executive vice president, Joseph Chrisman, 430 Board of Trade Bldg., Kansas City 5, Mo.

Feb. 8-9—Pacific Northwest Feed Mill Production School; Hotel Leopold, Bellingham, Wash.; sponsored by Washington State Feed Assn.; mgr., John G. Wilson, 814 Second Ave. Bldg., Seattle 4.

Feb. 10—Washington State Feed Assn., annual convention; Hotel Leopold, Bellingham, Wash.; mgr., John G. Wilson, 814 Second Ave. Bldg., Seattle 4.

Feb. 10-11—Poultry Fact Finding Conference; sponsored by Institute of American Poultry Industries; pres., Harold M. Williams, 59 E. Madison, Chicago 2.

Feb. 15—Turkey Short Course; University of Georgia, Athens; Dewey McNiece, Extension Poultry Dept.

Feb. 19-21—Midwest Feed Manufacturers Assn.; Hotel Muehlebach, Kansas City, Mo.; executive vice president, Lloyd S. Larson, 20 W. 9th St. Bldg., Kansas City 5, Mo.

Feb. 19-21—Ohio Grain & Feed Dealers Assn.; Neil House, Columbus; sec., George G. Greenleaf, 5625 N. High St., P.O. Box 121, Worthington.

Feb. 22—Kentucky Turkey Assn.; University of Kentucky, Lexington; J. E. Humphrey, poultry extension specialist.

Feb. 22—Broiler Housing Symposium; University of Georgia, Athens; Dewey McNiece, Extension Poultry Dept.

Feb. 28-March 1—Virginia Feed and Nutrition Conference; Hotel Roanoke, Roanoke; sec., J. Paul Williams, Virginia State Feed Assn., 615 E. Franklin St., Richmond.

March 8—Distillers Feed Conference; Sheraton Gibson Hotel, Cincinnati, Ohio; L. E. Carpenter, Executive Director, Distillers Feed Research Council, 1232 Enquirer Bldg., Cincinnati 2.

March 8-9—Nebraska Grain & Feed Dealers Assn.; Sheraton-Fontenelle Hotel, Omaha; sec., Howard W. Elm, Trust Bldg., Lincoln, Neb.

March 10-11—Oklahoma Feed Industry Conference and Workshop; Oklahoma State University, Stillwater; chm., Dr. Rollin Thayer, Poultry Science Dept.

March 15—Commercial Egg Production Short Course; University of Georgia, Athens; Dewey McNiece, Extension Poultry Dept.

March 16-17—Oregon Feed & Seed Dealers Assn.; Sheraton-Portland Hotel, Portland; mgr., Russ Hays, 702 Lewis Bldg., Portland 4.

March 16-17—Maryland Nutrition Conference; Shoreham Hotel, Washington, D.C.; chm., Dr. R. D. Creek, Poultry Husbandry Dept., University of Maryland, College Park.

March 20-24—Grain & Feed Dealers National Assn.; Washington D.C.; sec., Herbert L. Sharp, 400 Folger Bldg., Washington 5, D.C.

April 3-4—National Institute of Animal Agriculture; Purdue University, Lafayette, Ind.; sec., Karl D. Butler, P.O. Box 521, First National Bank Bldg., Ithaca, N.Y.

April 9-13—American Association of Cereal Chemists; Baker Hotel, Dallas, Texas; 1955 University Ave., St. Paul 4, Minn.

April 10-12—Poultry & Egg National Board; Sheraton Towers Hotel, Chicago, Ill.; mgr., Lloyd H. Geil, 8 S. Michigan Ave., Chicago 3.

April 13-15—Pacific Dairy & Poultry Assn. Exposition and Convention; Riviera Hotel, Las Vegas, Nev.; sec., Carl E. Nall, 1304 7th St., Los Angeles 21, Cal.

April 20-22—California Hay, Grain & Feed Dealers Assn.; Jack Tar Hotel, San Francisco; sec., Leo L. Johnson, Blue Anchor Bldg., 1400 10th St., Sacramento 14.

April 22—Alabama Poultry Industry Promotion Dinner, Dinkler-Tutwiler Hotel, Birmingham, Ala.; sponsored by Alabama Poultry Industry Assn.; sec., W. L. Walsh, Box 567, Montgomery.

April 24-26—Animal Health Institute; Mayflower Hotel, Washington, D.C.; sec., D. L. Bruner, 512 Shops Bldg., Des Moines, Iowa.

April 27-29—Kansas Grain & Feed

CALENDAR FOR 1960-61

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New Listings

For the convenience of readers who scan the Convention Calendar regularly for new listings, those added to the column in the current week appear separately from ones which have been entered previously. The following week they will be moved to their proper slot where they will remain until the event is held.

♥ ♥

Jan. 25—Louisiana Livestock Producers Day; Law Bldg., Louisiana State University, Baton Rouge; chm., Dr. G. L. Robertson, Animal Industry Dept.

Feb. 13-15—Farmers Elevator Association of Minnesota; Pick-Nicollet Hotel, Minneapolis; sec., Lloyd A. Nelson, 512 Grain Exch. Bldg., Minneapolis 15.

Feb. 19-21—Colorado Grain, Milling & Feed Dealers Assn.; Hilton Hotel, Denver; sec., R. L. Wier, 519 Boston Bldg., Denver 2.

Feb. 22—South Dakota Beef Research Day; South Dakota State College, Brookings; Dr. R. C. Wahlstrom, Animal Husbandry Dept.

April 17-18—Seventh Regional Area Convention, National Renderers Assn.; St. Paul Hotel, St. Paul, Minn.; sec., Harold Weiss, Gulf Soap Corp., Arabi, Louisiana.

June 19-24—American Association of Feed Microscopists Meeting and Short Course; Continental Denver Motor Lodge, Valley Highway and Speer Blvd., Denver, Colo.; Clyde E. Jones, 3130 Zuni St., Denver 11.

July 14-18—Georgia Feed Assn.; Grand Bahama Club, Grand Bahama Island; sec., W. E. Merritt, Suite 1-A, 361 E. Paces Ferry Rd. N.E., Atlanta 5.

Dealers Assn.; Broadview Hotel, Wichita; sec., Orris E. Case, 609 Wiley Bldg., Hutchinson.

May 5—Broiler Short Course and Chicken-of-Tomorrow Day; University of Georgia, Athens; Dewey McNiece, Extension Poultry Dept.

May 7-10—American Feed Manufacturers Assn. Convention and National Feed Show; Conrad Hilton Hotel, Chicago, Ill.; sec., W. T. Diamond, 53 West Jackson Blvd., Chicago 4.

May 7-10—Association of American Feed Control Officials; Hamilton Hotel, Chicago; sec., Bruce Poundstone, Head, Feed and Fertilizer Control Dept., University of Kentucky, Lexington.

May 14-15—Missouri Grain & Feed Assn.; Hotel Coronado, St. Louis, Mo.; sec., D. A. Meinershagen, Higginsville, Mo.

June 8-11 — Canadian Feed Manufacturers Assn.; National Convention; Manoir Richelieu, Murray Bay, Quebec; national secretary, W. N. Hendrick, 2901 Bloor St. W., Toronto 18, Ont.; for registrations, T. G. Sevigny, Room 100, 355 McGill St., Montreal 1, Quebec.

June 20-21—Alabama Poultry Industry Assn.; Whitley Hotel, Montgomery, Ala.; sec., W. L. Walsh, Box 567, Montgomery.

July 18-20—American Poultry Congress & Exposition; Municipal Auditorium, Minneapolis; Don M. Turnbull, sec., American Poultry & Hatchery Federation, 521 E. 63rd St., Kansas city 10, Mo.

July 24-23 — Southeastern Egg Quality and Grading School; Auburn University, Auburn, Ala.; sec., Southeastern Poultry & Egg Assn., Harold E. Ford, 235 E. Ponce de Leon Ave., Decatur, Ga.

Aug. 24-26 — North Carolina Feed Manufacturers Assn.; Virginia Beach, N.C.; sec., McNair Evans, Box 44, Mocksville.

Aug. 24-27—Georgia Poultry Institute; Rock Eagle 4-H Club Center, Eatonton, Ga.; Dewey McNiece, Extension Poultry Dept., University of Georgia, Athens.

Sept. 19-21 — Marketing Seminar for Feed Manufacturers; Morrison Hotel, Chicago; Sales Executives Council, American Feed Manufacturers Assn., W. E. Glennon, president, 53 W. Jackson Blvd., Chicago.

Sept. 27-29—National Feed Ingredients Assn.; Lake Lawn Lodge, Delavan, Wis.; sec., I. Levin, 517½ E. Locust St., Des Moines 9, Iowa.

Sept. 27-29—Pennsylvania Millers & Feed Dealers Assn.; Hotel Hershey, Hershey, Pa.; sec., D. W. Parke, P.O. Box 329, Ephrata, Pa.

Oct. 4-6—Texas Nutrition Conference; Texas A&M College, College Station; chm., Dr. J. R. Couch, Poultry Science Dept.

Oct. 23-25 — Centennial Nutrition Conference; Hotel Muehlebach, Kansas City 5, Mo.; sponsored by Midwest Feed Manufacturers Assn. and Land-Grant Colleges in Midwest's area; executive vice president, Lloyd S. Larson, 20 W. 9th St. Bldg., Kansas City 5, Mo.

Oct. 26-28—Association of American Feed Control Officials; Shoreham Hotel, Washington, D.C.; sec., Bruce Poundstone, Head, Feed and Fertilizer Control Dept., University of Kentucky, Lexington.

Nov. 8-9—Illinois Feed Assn.-Illinois Poultry and Hatchery Federation joint convention; Springfield Armory, Springfield; sec. I.F.A., Dean M. Clark, 141 W. Jackson Blvd., Chicago 4; sec. I.P.H.F., Aubrey Harless, Shelbyville, Ill.

1962

Aug. 12-18—12th World's Poultry Congress; Show Grounds of the New South Wales Royal Agricultural Society, Sydney, Australia; Dr. Cliff D. Carpenter, chairman, U.S. Participation Committee, 1207 Emerald Bay, Laguna Beach, Cal.; Dr. A. William Jasper, secretary, c/o AFBF, 2300 Merchandise Mart, Chicago 54, Ill.

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He is one of 3 men in your state who will be top winners in Hess & Clark's "Flock Manager of the Year" awards program. (One winner in each of 3 flock-size divisions: (1) 1,000 birds or less; (2) 1,001-3,000 birds; (3) more than 3,000 birds.) *He may be your customer.*

The "Flock Manager of the Year" competition is part of the Full Performance Index (FPI) program — Hess & Clark's newest industry-wide promotion that encourages flock managers to bring all vital egg-profit factors (feed, birds, flock health, housing and equipment) into balance. A sound, proven way to help your customers help themselves, FPI is a companion promotion to Hess & Clark's now well-known "Golden Goodness of Eggs" campaign — a program designed to increase egg consumption and improve prices.

Most likely you know several conscientious, business-minded egg producers. Urge them all to enter the "Flock Manager of the Year" competition. If one of your customers is a top award winner . . . or one of many merit award winners . . . he'll benefit from a strong, state-wide reputation as a top poultryman. You will gain extra business, extra sales. But hurry! Everyone entering must maintain records of flock performance for any 12-month period between Sept. 1, 1960, and Dec. 31, 1961. *All entries must be in before Jan. 31, 1961.*

Write for an FPI Awards Kit. It contains everything you need to get your customers started—entry blanks, rules and regulations, FPI record charts. A post card to the address below will bring your kit.

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Dairy Heifers Record Different Gains on Pelleted, Baled Hay

CLEMSON, S.C.—Which is the best roughage for dairy cattle—pelleted hay or baled hay?

Researchers at Clemson College say their preliminary investigations indicate that dairy heifers gain faster on pelleted hays.

The dairy department at Clemson recently completed four experiments comparing pelleted hays with baled hays for their influence on the growth of yearling dairy heifers. G. D. O'Dell, Dr. W. A. King, C. C. Brannon, Dr. H. J. Webb, and W. C. Cook all participated in the study.

The hays compared in the tests were baled alfalfa, pelleted alfalfa, baled Coastal Bermuda, pelleted Coastal Bermuda, and pelleted Coastal Bermuda with 5% blackstrap molasses.

The department explains that groups of four yearling heifers each were used in the trials. The first two tests were of 28-days' duration, and the last two were of 112-days' duration. The amounts of hay fed each group were varied, and both controlled and free-choice feeding were tested. Concentrate feeding, however, was controlled in all the trials.

The first two trials showed that controlled feeding limits any beneficial results, including daily gains, that might be expected from feeding pelletized roughage. When fed equal amounts, the group receiving baled alfalfa gained faster than the group receiving pelleted alfalfa. This was partially due to the lowered digestibility of pelletized hays.

The researchers point out, however, that when the hays were fed free-choice, a different pattern was seen. In both 112-day trials, the group fed pelleted alfalfa by the free choice method made faster gains. And in both trials, the group receiving pelleted Coastal Bermuda gained at a faster rate than the baled alfalfa or the baled Coastal Bermuda group.

Other similar experiments on choice of roughages will be conducted at Clemson College this winter.

California Progress In Animal Research Told

SAN FRANCISCO—At a meeting of the Livestock Advisory Committee of the Agricultural Council of California, the University of California annnounced progress in research seeking the cause of butterfat depression in cows on pelleted hay rations, seeking the net energy values of various feeds, and trying to prevent bloat in cows eating fresh alfalfa.

Scientists said that continued research on hay pellets seemed to indicate that rumen function and fermentation affected the formation of substances which create butterfat. The finely ground hay in pellets may cause the decrease in butterfat by its effect on rumen function.

A study of the energy value in feeds has been set up for dairy cattle similar to the program already under way for steers. Experiments using alfalfa hay and barley have already been completed, and the results are being analyzed. The experiments will be extended to beet pulp this winter. The department of animal husbandry is cooperating with the food science department in studies into ration components affecting the oxidative stability of milk.

Bloat studies indicated that 3 lb. of oil per ton of greenchop alfalfa will prevent bloat. Scientists suggested feeding vegetable oil or tallow with the concentrate mix.

Scientists also told the livestock committee that experiments indicated that young dairy calves on high carbohydrate rations should receive B-vitamin supplements.

PUSHBUTTON MILL IN VENEZUELA—This is the new pushbutton mill opened recently by the Protinal, C.A. in Valencia, Venezuela. Capable of producing a full line of finished poultry, hog and dairy feeds, the mill has a capacity of one metric ton per minute. It was designed by Sprout-Waldron of Muncy, Pa.

Venezuela Firm Opens Push Button Feed Mill

VALENCIA, VENEZUELA — A modern automatic push button operated feed mill, capable of producing a full line of finished poultry, hog and dairy feeds, has been put into operation here by the Protinal, C.A.

Located on the Valencia Plain, the new mill has a capacity of one metric ton per minute.

An existing oil extraction plant provides extracted sesame seed and soybean meals for the new mill, which supplements Protinal's present program for development of the animal industry in Venezuela. The firm operates an experimental farm and large hatchery and poultry growing operation.

Materials for the feed mill, designed by Sprout, Waldron & Co., are received from existing grain storage, extraction plant warehouses and grinding operations by means of two air systems with 30 ton per hour capacities each. Truck receiving is accomplished by another air system with 15 tons capacity per hour and two main bucket elevators.

The incoming material is delivered to 32 ingredient bins (four of which are for premixes) and then drawn by screw feeders into two scale hoppers controlled by a Richardson punch card panel system.

Three separate control panels have been installed—one to control mixing operations; one for receiving and distribution of incoming ingredients and one for controlling the pelleting and shipping operations.

The new push button equipment includes facilities for mixing, distribution, pelleting and loading.

W. T. Garner Named to Regional Sales Post

SAN FRANCISCO — William T. (Bill) Garner is now regional sales manager of the textile devision of Ames Harris Neville Co. His region includes California, Nevada, Arizona, New Mexico and southern Utah.

Mr. Garner joined Ames Harris Neville Co. in February, 1952, and served the past four years as sales representative in the Bakersfield, Cal., area.

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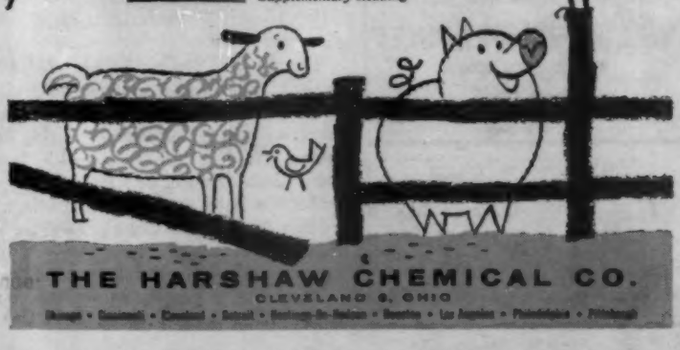

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Missouri Groups Push Quality Egg Program

SPRINGFIELD, MO. — A large-scale move has been reported under way in the Springfield area to interest farmers in a quality egg production program. The egg program is being promoted by feed companies, industrial development groups and agricultural officials.

Housing appears to be one major problem holding back the growth or improvement of egg farms in the area, says Terry Palmer, representative of the Missouri Farmers Assn. Milling Co. and a speaker at the recent Poultry Day held at Southwest Missouri State College.

At the same meeting, Polk County extension agent Bob Kallenbach said that the biggest task facing egg operation promoters is to change the current opinions about layer operations held by farmers.

"Farmers have adopted modern devices and equipment for dairying, and they'll have to do the same thing for poultry. Though 1,000 birds is probably an acceptable minimum, I'd rather think in terms of 5,000," he said.

Nelson Morris New Darling & Co. Head

CHICAGO—Nelson Morris II has been elected president of Darling & Co., one of the country's largest independent rendering firms. He succeeds William H. McCausland, who has become chairman of the board.

Mr. Morris joined the firm in 1946. He was general manager of the Buffalo, N.Y., plant from 1952 to 1954 and then returned to Darling's Chicago headquarters as assistant to the vice president in charge of sales. He has been vice president in charge of sales for the past four years.

In other management promotions, Charles C. (Chuck) Jensen has been named general manager of the mineral feed and fertilizer divisions. He formerly was sales manager of the feed division.

Mr. Jensen joined Darling in 1949 after graduating from Michigan State University.

William E. Jordan, former assistant sales manager, has been named sales manager of the mineral feed division.

Darling & Co. manufactures animal feeds, fertilizers, fatty acids, glycerine, glue, tallows, greases and other animal by-products.

Maine Poultry Tax

AUGUSTA, MAINE—Directors of the Maine Poultry Improvement Assn. have suggested that an industry tax plan be developed and presented to individual producers for their consideration.

The purpose of the proposed levy would be to raise funds for whatever future programs or uses the industry commission decides on—research, services, education or promotion.

Similar programs are now conducted in Maine on potatoes, sweet corn, milk, blueberries and sardines.

Vermont: Grain Takes 27% of Dairy Receipts

BURLINGTON, VT.—A study of 92 Vermont farms by the Vermont Agricultural Experiment Station shows that, on the average, the cost of grain takes 27% of dairymen's milk receipts and grain and concentrates cost $1.44 for every 100 lb. of milk produced.

Malcolm I. Bevins, assistant agricultural economist, made the analysis of the figures, which also revealed that average 1959 earnings of the 92 farms were $5,355.

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● A recent report emphasizes that vitamin A fortification should get more attention in the feeding of cattle. The author estimates that cattle need about 10,000 IU vitamin A per head per day in addition to carotene from natural feedstuffs. Vitamin A deficiency was produced by self feeding a mixture of eight parts of ground ear corn and one part of soybean meal. Cattle gained poorly and lost $9.38 per head. Similar cattle fed a special supplement containing vitamin A gained 2.44 pounds daily for a profit of $23.36 per head. Part of the difference in profit was attributed to vitamin A.

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SELLIN' SAM **By Jim Zilverberg**

"I find this wakes him up quicker than if he drinks it!"

Inspection Chief Says Responsibility For Cutting Condemnations Is Growers'

BATON ROUGE—The responsibility for reduction of poultry condemnations now lies with the producer, Dr. R. E. Willie, chief, Inspection Branch, U.S. Department of Agriculture, told persons attending the convention of the Poultry Industries of Louisiana, Inc.

Topic of the inspection chief was "Problems in Connection with Government Inspection of Dressed Poultry." Other talks at the meeting included: "Merchandising with Chain Stores" by Ted Stuck, manager, Lone Star Feed & Egg Depot, Shreveport, La., and "The Future of Our Eggs," by R. M. Hendrickson, General Mills, Inc.

Dr. Willie said, "We have been deeply concerned about the level of condemnations that have been experienced by many poultry growers. We have done everything we could to be sure that our criteria are right and that their application is correct. I must say that we can do practically nothing more in this area and the responsibility now must rest with poultry producers.

"Unless some growers are equipped to produce healthier poultry during this next winter than they did during the past winter, a vacation trip around the world for about six months might cost them less than to stay in the poultry production business. Two and one-half percent condemnations on 20¢ lb. live price adds ½¢ to the production cost. There is just not enough profit in the poultry growing business for this to continue over an extended period."

Few Flocks Involved

Dr. Willie stressed that the high condemnations are generally limited to relatively small numbers of flock owners. He said that because of the broad interest in this, the impression is given that all growers experience high condemnations. However, this is not the case, he stated.

He said that his department has studied the matter and even last winter the flocks which had condemnations exceeding 2% were limited to less than 5% of flock owners. He said that there are wide differences from area to area and plant to plant.

Dr. Willie emphasized that producers experiencing above normal condemnations must compete with those with normal levels.

Because of its interest in the welfare of the poultry industry, Dr. Willie said, the Poultry Division has even gone beyond its authority in developing a system whereby inspectors can contact diagnostic laboratories so that the laboratories make their tests to determine what specific diseases are present and establishing educational programs among growers to help improve growing practices.

The chief of the Inspection Branch said that several research studies have been made in an attempt to isolate the most common factors causing high levels of condemnation. Other studies have been aimed at identifying those practices which are common when flocks are found to be in general healthy condition. Some of these reports are not available in total now, but Dr. Willie said he thought they had brought out four broad factors which affect the health of poultry delivered to processing plants. Those factors are "the source of the chick, the adequacy of heat and ventilation. general sanitation and over-all management practices."

MERCHANDISING WITH CHAIN STORES—Mr. Stuck told the poultrymen that they "must be constantly striving toward developing a more uniform and higher quality pack. Mrs. Homemaker wants to know she will be able to get the same flavor, color and quality egg in June or January. This is essential to increase sale of eggs." He continued, "We should create new package ideas to make Mrs. Homemaker pick up these high quality eggs."

Mr. Stuck said, "As I see it, the first thing you will have to do to stay in this egg game is to make available to retailers a dependable, large supply of uniformly high quality eggs. By this I mean real quality. This means there will be little or no room for slip-ups.

"You will have to specify that the farmers supplying you with eggs will have to follow the same general production practices, such as feeding in a similar manner or even the same feed. All will have to handle their eggs according to the same specified

procedures and each have refrigeration.

"Changes will be required, as you can see, to meet the needs of the retailers who buy and sell in large quantities. They can no longer depend on the output of a few local farms for their supplies. They have made it clear that they want to buy in volume, and they want products of a closely graded, uniform quality and pack. Don't forget, however, the ultimate consumer of our products still holds the veto power in the retail stores and supermarkets. Our nation's housewives have indicated without a doubt that they want a good grade of eggs on which they can depend every time they buy. And, this most certainly means uniformity and quality."

He emphasized the need for more promotion, advertising and merchandising in the line of packaging and point of sale materials.

THE FUTURE OF OUR EGGS—The future health of our business depends on new product development, modern marketing, planned production and increased consumer education, Mr. Hendrickson told the poultrymen. "We must all participate and cooperate—as a unified industry working toward a common goal through our state and national poultry organizations—even though we may be competitors individually on a day to day basis."

He said that egg producers must recognize that their real competitors are other foods.

Turning to the growth of convenience packaging of foods, he said, "This actually confirms the growing realization that our real competition is the processor of other foods who is doing a better job of originating new products and then selling them to consumers. Remember, no one has to buy any one food item; there is usually an available substitute, sometimes at a cheaper price."

Grocery products are constantly being discarded then issued in new and improved form with more up-to-date packaging. While all this has been going on in the food business, eggs have continually been sold in one form only—in the shell, with indifferent quality and undistinguished packaging, he stated.

He pointed out a study which showed that products which had not had any significant new or improved product development expanded in sales only 10% in the last eight years despite rising economy and rising population. In foods with great product development, new or improved products, gained 513%. In some cases the new products cut into sales of the old, established items. But over-all, the introduction of these new products has resulted in a 78% gain for the combined total.

Impulse Buying

He also mentioned a DuPont consumer buying study which showed impulse buying accounted for 50.9% of all supermarket purchases. However, eggs accounted for only 28.6% of unplanned purchases. Only four items had a lower percentage, the study showed.

Regarding new products to increase egg demand, Mr. Hendrickson said, "Today a new product that comes from a good stable, large or small, is studied more carefully than the best loved yearling. It's examined by a flock of experts at the very beginning, to find out four very simple things: Has it got potential to attract lots of customers? Can it be made at a price they will be willing to pay? Can it be sold profitably? Does it provide new or increased value for the consumer? If the answer to these questions isn't 'Yes,' the product isn't worth the trouble and expense of training it to race for the consumer's dollar in the modern supermarket."

On this topic, he reminded, "The big stables don't win all the races. Sometimes a product born in a farm kitchen and introduced in a country store wins local acceptance, then regional popularity, and finally emerges in the winners' circle, a dark horse victor in the national sweepstakes."

USDA Cattle Census Figure Revision Set

DENVER — A partial census of livestock has indicated that the U.S. Department of Agriculture's estimate of cattle numbers Jan. 1, 1960, may have been too high. But, USDA says the downward revision will be less than indicated by preliminary census totals, according to the American National Cattlemen's Assn. The census has been used by USDA as a "benchmark" in revisions of its interim counts, but other data are also taken into account, the association reported.

The department has explained that 33 states reporting in the census of the fall of 1959 counted 1.5% fewer cattle than in the 1954 census. USDA's Jan. 1, 1960, estimates for these states were 4.5% higher than on Jan. 1, 1955. Among the reasons for this: Slaughter in November-December 1954 was 1.2 million head over November-December, 1959, so disappearance between the date of the census and Jan. 1 was higher in the fall of 1954 than 1959.

It was also stated that the 1959 census was about two weeks later than in 1954 giving, in addition to heavier slaughter then, two more weeks of slaughter to be deducted in arriving at Jan. 1, 1955, numbers.

USDA says that imports were much less in that earlier period. Because of a change in the definition of a farm, many small places having a cow or two censused in 1954 were excluded in 1959. In the 33 states, such farms make up 4.5% of the total. Thus, USDA says the reduction in the estimate will be lower than expected earlier.

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Says Both Integrated, Independent Operations Hurt by Low Egg Prices

NEW BRUNSWICK, N.J. — Both integrated and independent egg operations were adversely affected by the 1958-59 price situations, Dr. A. Robert Koch, Rutgers University agricultural economist, says in a recent extension publication.

An article by him in New Jersey Agriculture states that low returns caused integrators in the table egg phase of the industry to diminish operations or to cease operations entirely. "Inability to cover operating costs was a primary factor causing termination of some programs," he writes.

Dr. Koch notes that two large owner-integrated table egg programs in the Ocean-Monmouth County area of New Jersey were curtailed in the latter part of 1959. One program which in May, 1959, coordinated 26 farms had been reduced to three farms by January, 1960. The other program had ceased operations entirely.

Also, expansion of table egg contract plans was curtailed late in 1959. "One integrator had signed seven contracts with producers from March to August, 1959," Dr. Koch relates. "By January, 1960, three of the contracts had been cancelled through mutual consent."

Case Study Cited

He says the following case study of a contracted table egg enterprise and comparison with independent operations indicates that "contract plans are no cure-all for low prices":

Farm 1, of eight acres, is located in a major poultry county. Within 15 miles of the farm there are approximately 25 licensed egg dealers, 3 cooperative bargaining associations and 28 feed dealers. Metropolitan areas of New York and Philadelphia are approximately 50 miles north and west, respectively. The producer had been affiliated with a table egg enterprise for five years before he signed a financial assistance contract.

Dealer Owns Birds

Lack of funds for further expansion was his primary reason for integrating the table egg operation. After deciding to raise layers under a 16-month contract, the producer rented an additional farm with capacity for 5,100 birds. Under the terms of the contract the feed dealer provided 22-week-old pullets to the producer and also supplied feed, medication and litter as needed. The producer agreed to pay a rental fee of $7,344 for the birds plus the cost of feed and other inputs. Ownership of the birds remained with the feed dealer.

The producer owned and marketed the eggs produced by the flock. Egg checks were sent from the marketing agency to a coordinating agent who deducted the cost of feed and a portion of the pullet rent. This payment was sent to the contractor, and 80% of any residual was paid to the producer. Twenty percent of net producer returns was held in escrow to pay debts that had been incurred before the flock came into full production. When past liabilities had been paid to the contractor, 100% of net returns was paid to the producer.

Rental payment of the pullets was based on a sliding scale. When the price of eggs was 15¢ at wholesale, 5¢ per dozen was deducted for repayment. As the price of eggs increased from 15¢, repayment of the pullet rent increased one half cent per dozen for each 5¢ increase in the wholesale price of eggs.

Records of the enterprise were available from August, 1959, through mid-March, 1960. During the period, 56,374 doz. eggs were sold for a gross return of $17,483. Feed costs amounted to $13,585 and bird rent to $4,469. The producer marketed eggs twice weekly.

At the end of each week, if gross returns from the eggs exceeded feed cost and bird rental, 80% of this residual went to the producer and 20% to the escrow account to be applied against previous debts. If gross returns were less than feed cost and bird rent, the producer received no income for that week.

There were 35 weekly payment periods from August, 1959, to mid-March, 1960. At the end of 20 payment periods gross returns exceeded feed cost and bird rent, and at the end of next 15 payment periods gross returns were less than feed cost and bird rent. For the 7½-month period, producer returns amounted to $1,857 or 38¢ per bird.

Expenses not covered in the contract were paid by the producer out of the $1,857 return. Rent for the farm on which the birds were housed, hired labor, litter and medication amounted to $1,731. Thus, farm income was $120 for the 7½ months. This amounted to a little better than 2¢ per bird.

In August, 1959, 20 independent table egg producers agreed to cooperate in a monthly record project which included returns above feed cost and other related data. Continuous records have been kept and analyses returned to cooperating producers for "compare-account" purposes. Data from above-average, average, and below average "compare-account" independent table egg enterprises formed the basis for contrasting producer returns on integrated contracts and nonintegrated operations.

Certain assumptions were needed to obtain comparable data from the independent operations. The assumptions were as follows:

1. Twenty-two-week-old started pullets were purchased.
2. The flock would be liquidated at the end of 16 months.
3. Monthly bird cost was the same for all independent producers.
4. Pullets could be obtained for $2 per bird.
5. Salvage value was 62¢ per bird.
6. Producer returns per bird above

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When a growth stimulant increases weight in *marketable* birds so that the improvement is worth many times the initial cost of the growth stimulant, it's obviously a good investment. And when that same growth stimulant additionally produces a significant increase in feed conversion efficiency, then it's an even better investment! GALLIMYCIN-10 is just such a growth stimulant!

Increases profits in 3 ways

The low-level effectiveness of GALLIMYCIN-10 ... greater marketable weight produced ... plus savings in feed ... all add up to bigger profits. Increased profits from feeds supplemented with GALLIMYCIN-10 have ranged from $29 to $46 per 1,000 birds ... added profits *above* feed and feed additive costs!

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feed cost and bird cost would be used to pay labor, veterinary, litter, mortgage, insurance, gas and electric expenses, besides interest on investment and/or rent.

Following is a comparison of producer returns per bird on integrated and nonintegrated operations, August, 1959, to mid-March, 1960.

Farm	Producer returns per bird above feed cost and bird cost
Integrated:	
Farm No. 1	38c
Nonintegrated:	
Above average Farm No. 2	90c
Average Farm No. 3	65c
Below average Farm No. 4	—02c
Average of 29 farms	60c

Author's Conclusions

"With a ready access to working capital it appears that above average producers would have little to gain by signing the bird rental contract," Dr. Koch says. "Though returns on nonintegrated Farm 4 were below those of integrated Farm 1, there is no guarantee that returns would have been increased under the contract program.

"Nonmonetary considerations are also important on Farm 1. Fieldmen provided managerial assistance and periodic inspection of the flock. The producer did not absorb all losses since the feed company assumed any deficit at the end of the contract period. The rental cost per pullet was probably less than the price per pullet that an independent operator would have to pay.

"The feed company furnished pullets at approximately $1.50 per bird. Preliminary results of cost studies concerning the raising of started pullets to 22 weeks of age indicate costs range from $1.75 to $2 per bird.

"Other than providing a means of acquiring working capital, obtaining managerial assistance and risk reduction in event of loss, the performance of case Farm 1 was unfavorable as compared with the independent operations which were analyzed."

Southerner Pleased With California-Type Cage Layer Plant

RALEIGH, N.C. — Bill Johnson, who produces eggs under contract for Central Carolina Farmers Exchange of Durham, says he is well pleased with the operation of his new California-type cage layer plant. It is said to possibly be the first of its kind in the South.

The building is 11 by 300 ft. and now holds 3,600 pullets seven to eight months old. "The cage layer plant has eliminated dirty and cracked eggs from our production," Mr. Johnson said.

"We now have 23,000 pullets in production and plan to change to the California poultry house for our entire flock as soon as possible.

"Materials in the present structure cost less than $2,000. This includes creosoted posts, galvanized roof, cement walk running entire length, and wire from which the cages were built.

"Birds are housed 18 to the cage, and feed is handled from a mobile truck moving down the center aisle while troughs on each side are filled.

"Since cage floors are slanted slightly forward, the eggs roll gently down into the gathering trough," he explained.

"It's 8 o'clock . . . I sorta hate to start our Sales Training Program without them."

E. R. Marookian Joins Merck Chemical Group

RAHWAY, N.J. — Dr. Edgar R. Marookian has assumed the position of manager of technical service, animal health products, with the Merck Chemical Division of Merck & Co., Inc., it has been announced by D. K. Richards, agricultural products manager.

E. R. Marookian

For the past two years, Dr. Marookian has been technical specialist of the south central region, with headquarters in Dallas.

Dr. Marookian received his B.S. degree in agriculture from Pennsylvania State University in 1950, and his D.V.M. degree from the University of Pennsylvania in 1954. He was in veterinary practice for four years in Clinton, N.J., before joining Merck & Co., Inc., in 1958.

$1,000 Grant Slated For Top Poultry Paper

MADISON, WIS.—A $1,000 travel grant awaits the poultry scientist who submits the best paper for presentation at the 12th World's Poultry Congress to be held in Australia in August, 1962.

This announcement was made by Dr. H. R. Bird, University of Wisconsin poultry chief, who is in charge of papers for the U.S. Participation Committee for the 12th World's Poultry Congress. The award is provided by the Poultry Science Assn.

All members of the Poultry Science Assn. are eligible for the award —not just those in the U.S. Dr. Bird says he expects to receive some entries from Canada and perhaps other countries.

The recipient must be a member of the association, not over 45 years of age and the paper will have to be submitted by July 15, 1961.

GALLIMYCIN has been proven better

In scientific studies at agricultural colleges and experiment stations, and in tests conducted at Abbott's Research Farm, GALLIMYCIN, used at a level of 5 grams per ton of feed, consistently produced better results.

Growth improvement in flocks fed GALLIMYCIN, based on an average of field trial results, was 5.8%. Yet, it takes *less than 1% improvement in growth to pay for GALLIMYCIN at the recommended level!* GALLIMYCIN-10 increased feed efficiency at the same time, producing greater net gains per pound of feed. In one trial, feed efficiency was 7.4% higher in the flock receiving GALLIMYCIN than in the control flock receiving no growth stimulant.

A 9-week floor pen test at the University of Arkansas, in which GALLIMYCIN was added to feed at a level of 5 grams per ton, produced these results: 190 lb. extra weight per 1,000 birds on 51.4 lb. less feed! These are impressive figures just as they stand, yet the dollar equivalent is even more impressive. Using a broiler market price of 18¢ and a feed cost of 4¢ per pound (exclusive of antibiotic cost), GALLIMYCIN produced $35.45 *extra profit* per 1,000 birds!

In another trial involving 5,300 birds, the average weight of GALLIMYCIN-fed birds at 9 weeks-six days of age was 4.12 lb. Feed conversion in the same test was 2.23.

GALLIMYCIN has been compared with the "older" antibiotics in numerous field trials and has consistently produced better growth responses from less feed. In Utah, the effect of GALLIMYCIN on growth promotion was studied in comparison with five other antibiotics. In these studies, GALLIMYCIN produced greater average weight and better feed conversion efficiency than any of the other antibiotics tested.

GALLIMYCIN-10 has been field tested in every major broiler area in the country. It is effective as a low-level growth stimulant (under practical growing conditions)... stimulating growth at a higher rate of feed efficiency. GALLIMYCIN-10 can be fed continuously, right up to the day of marketing; no withdrawal period is necessary. It's supplied in a free-flowing premix with a soy bean oil meal carrier, manufactured under rigid standards of Abbott quality control. And, GALLIMYCIN-10 carries a 24-month expiration date! GALLIMYCIN-10 is safe... proven; there are no special registration requirements.

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The higher initial cost of GALLIMYCIN becomes minor when measured against increased weight in marketable birds, plus savings in feed ... for the true cost of an antibiotic feed supplement depends on the results it produces.

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. . . *"I believe there is little doubt but what Feedstuffs is the business publication which would best serve your needs. This is an outstanding publication without rival within its field. I am sure it will fulfill your interest in 'ingredient market news, services available, technical information, innovations, etc.'"*

So wrote a professor of animal science at a large midwestern university in response to a letter from a Jamaican feed manufacturer asking which magazine would be most helpful in his business.

There are a lot of hard-headed businessmen in the feed industry who agree with the professor . . . nearly 14,000 of them subscribe to FEEDSTUFFS . . . because it helps them keep abreast of their fast-paced industry.

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DISCUSS POULTRY PROBLEMS—Two of the Midwest's foremost poultry authorities, Dr. R. L. Kohls (second from right), professor of agricultural prices and marketing, Purdue University, and Dr. A. R. Winter (right), chairman of the poultry department, Ohio State University, discuss poultrymen's problems with George C. Gibson (left), Yieldmor Feeds, Inc., general manager, and Congressman William M. McCulloch at Yieldmor's annual broiler and poultry management and disease control clinic held in Piqua.

Yieldmor Poultry Disease Control Clinic Draws 150

PIQUA, OHIO — The sixth annual Yieldmor Broiler and Poultry Management Disease Control Clinic drew 150 leading poultrymen and specialists here.

Under the direction of George C. Gibson, general manager of Yieldmor Feeds, Inc., the clinic was opened by Gates Vickers, vice president of the Ohio Poultry Assn., who discussed promotion and merchandising of poultry and eggs in Ohio.

Broiler hen feeding was discussed by Dr. Edward C. Naber of the poultry science department, Ohio State University, and Dr. A. R. Winter, poultry department chairman, moderated a management clinic panel. Panel members were Robert Barker, Twin Valley Hatchery, West Alexandria; Harlan Fleming, Fleming Hatcheries, Steubenville; Henry Mangus, Arbor Acres Farm, Thorntown, Ind.; Earl Short, Neuhauser Hatcheries, Inc., Napoleon; Ralph Strome, field service and promotional manager, Poultry Production Assn., Versailles, and Clair Lerch, Miami Chick Hatchery, Sidney.

Highlight of the program was a talk by Dr. R. L. Kohls, professor of agricultural prices and marketings, Purdue University. His subject was "The Future for the Broiler and Egg Industry — What Does it Hold for Us?"

Dr. Kohls' talk, which dealt with problems that poultry and merchandising will have to meet in the future, was followed by a disease control clinic moderated by Glyde A. Marsh, D.V.M., poultry extension service, college of veterinary medicine, Ohio State University.

Panel members were Dr. Leonard P. Bailey, D.V.M., Yieldmor laboratory service, Piqua; Dr. Morris Erdheim, D.V.M., director, marketing and technical service, Dawe's Laboratories, Inc., Chicago; Dr. Harry Goldstein, D.V.M., veterinarian in charge, diagnostic laboratory, Reynoldsburg, who spoke earlier on available diagnostic services for poultrymen; Dr. J. F. Long, D.V.M., assistant veterinarian in charge, diagnostic laboratory, Reynoldsburg, and Dr. Frank J. Siccardi, D.V.M., industry services department, Dr. Salsbury's Laboratories, Charles City, Iowa.

Ohio Co-op Develops Dairy Feeding Program

FOSTORIA, OHIO — The Ohio Farmers Grain & Supply Assn. has introduced a new dairy program to its dealers and farmer customers. The new program was developed by the nutrition department of the Ohio Farmers Assn. headquartered in Fostoria.

"The program we offer is complete," says Milton P. Kalmbach, nutritionist for the association, "in that it includes a specific program for the calf, for the growing or milking animals and also lists an exact feeding schedule to be used during the dry period. This schedule for the dry period and the schedule to be used at freshening time are new concepts in dairy cattle feeding.

"The program is also unique in that it has a specific feeding schedule for the milking cow rather than just a rule-of-thumb program. Recommendations for milking cows take into consideration daily milk production, body weight, condition, age, quality and amount of hay consumed, type of roughage and appetite. It is an exacting program," he says.

The program, explained in pamphlets issued by the association, is written simply and briefly and includes details for every phase of dairy animal feeding.

New Swine Feeding Facilities in Kansas

MANHATTAN, KANSAS — New swine feeding facilities being placed in operation at Kansas State University in Manhattan this month will permit university scientists to expand research work with swine in the Kansas agricultural experiment station.

The new facilities resulted from converting an old machine shed into a concrete-floored area containing 14 pens, each designed to hold 10 pigs. The pens are supplied with automatic waterers and self feeders.

According to Dr. R. F. Cox, head of the animal husbandry department, the first group of pigs in the new facility will be used for a study of the effects of certain supplementary trace minerals upon various carcass characteristics.

Dr. Cox explains that swine research is becoming increasingly important in the state. Kansas now has more than a million hogs, and the swine population is expected to increase as production of grain sorghum increases.

Boy Produces 5-Lb. Broilers in 9 Weeks

EL DORADO, ARK.—Ample feed at all times along with the presence of constant fresh water and lights enabled Alva Cobb, Jr., Arkansas 4-H boy, to accomplish the unusual feat of producing 5-lb. broilers within nine weeks. Recommended broiler feed was on hand at all times. His project was part of the program promoted by the El Dorado Chamber of Commerce to stimulate more interest in poultry production in the area.

This broiler program was launched July 15 when 31 4-H club members each received 28 day-old chicks. Each small group of broilers was confined to the same type of area that is recommended in commercial broiler production, the announcement said.

FOXBILT WINNER—W. W. McCallum (right), president of John Morrell & Co., is shown here congratulating Leon Geiner, Klemme, Iowa, who received the top Foxbilt Five Star Salesman Award for 1960. Also on hand to congratuate the sales winner were Wayne A. Rodgers (left), general manager of the Foxbilt division and Mrs. Geiner.

Topper Awards to Foxbilt Feeds People

DES MOINES — Topper Awards were presented to representatives of Foxbilt Feeds at the company's annual "Topper's Party" held in Hotel Savery.

The Five Star Dealer Award went to J. B. and Carl Halferty of Dearborn, Mo. Leon Geiner of Klemme, Iowa, received the Five Star Salesman Award. The Top Zone Manager was Dale Buckmaster of Fremont, Neb.

Winners of the company's top sales awards were guests of honor at the Topper's Party banquet and dance. W. W. McCallum, president of John Morrell & Co., of which Foxbilt is a division, made the Five Star presentations.

Some 340 other Foxbilt dealers, salesmen, managers and wives from eight Midwest states also were honored at the party. They were presented a Topper lapel pin and award pennant by J. K. Lepley, Foxbilt general sales manager.

Kansas Cattle Feeders Told to Concentrate On Market Reputation

CLAY CENTER, KANSAS—Maurice Johnson, a former feed industry executive and now a Kansas City banker, told a group of Kansas cattle feeders in a recent talk that they should work to establish a market reputation in the future.

Mr. Johnson, vice president of the First National Bank of Kansas City, addressed 120 farmers attending the second annual "Appreciation Dinner" sponsored by the Key Milling Co., of Clay Center. He said that Clay County farmers have all the elements for successful cattle feeding.

"You have to find out who your competition is, and how tough it is, before you make long range plans, though," he added.

"The hottest competition to Kansans can be found in Iowa and California. But Kansas offers some advantages neither of these states has.

"You have the cattle numbers—more than 50,000. There's not a weather problem of 30° below zero, as is the case in Iowa. You have wonderful research facilities less than an hour away (Kansas State University). You have financing available, plus fine grass, hay, grain and silage."

On the liability side, Mr. Johnson said that an innate conservatism seems to exist among the county's residents. "Perhaps you've been hurt by some bad weather and some poor markets. You fear to grow—to make a long-range plan and stick to it."

Pointing to counties in the nation whose products are sought by buyers as soon as they find the product is from that county, Mr. Johnson urged local cattlemen to establish a reputation for excellence.

"It will take some effort to see how high a record you can achieve as a county in the quality of cattle shipped. It can't be done in a year, either. But whenever people get together as a community and decide to establish a reputation for eggs, cattle, meat-type hogs or other products, the buyer starts to pay attention.

"It takes a dedicated community to establish a market personality, but the results are worthwhile for everyone," he concluded.

Plan South Carolina Grain Export Facility

CHARLESTON, S. C. — Plans to build a soybean and small grain export facility at a South Carolina port have been announced by the South Carolina State Ports Authority as part of a $21-million ports expansion program.

It has not been decided whether the grain facilities will be built at Georgetown, Charleston or at Port Royal. Possible sites will be discussed at a later meeting in the governor's office between port authority officials and a special committee set up to study the matter.

Just how large the facilities will be has not been determined either.

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Feed Mill, Ordered To Operate 'Quietly,' Appeals Court Rule

DES MOINES—The feed industry—in Iowa, particularly—is watching with considerable interest the outcome of a lawsuit in which a Vinton, Iowa, feed mill, ordered by a district court to operate "quietly and neatly," has appealed the verdict to the Iowa Supreme Court.

Feed men were reported to have said upholding of the district court verdict by the higher court could establish legal precedent and could lead to "numerous complications."

Max Schlotfeldt, who is next door neighbor to the Vinton mill, won $3,065 judgment and an injunction against the mill in Benton County District Court.

Erected in 1945

Mr. Schlotfeldt said he had a nice home in a residential section of Vinton and then Vinton Farmer's Supply Co., Inc., started building a mill in 1945. He stated the mill grew larger and "more bothersome" with time.

He said a concrete silo 40-50 ft. tall was built only 6 ft. from his home. Mr. Schlotfeldt testified that the silo cut off sunlight from his home and his family "had to keep electric lights burning even in daytime."

The mill's machinery would start as early as 6 a.m., he said, and "continuously emitted loud and growling noises." Grain dust and oat hulls made it necessary for the Schlotfeldts to keep windows closed on two sides of their home, according to testimony.

District Judge M. C. Farber found evidence that dust and oat hulls from the plant "have been so bad they have had to be shoveled and swept from porches and sidewalks."

The judge stated, in his award of the damages and injunction, that "the Schlotfeldt family put up with the noise and nuisance as long as possible and then were forced to move."

The judge further ruled that the mill's contention "that it should be excused because it operated the plant as carefully as possible constitutes no defense." The judge awarded Mr. Schlotfeldt damages of $35 monthly for the past five years for the home's decreased rental value due to the close location of the mill.

The mill was also ordered not to operate its plant unless it could do so "without vibration, noise and annoyance" and without polluting the air with dust, oat hulls and noxious odors."

FEED STORE SOLD

CANYONVILLE, ORE. — Rimell's Feed & Seed Co., here, was sold by Mr. and Mrs. Harry Brankey to Mr. and Mrs. Louie Rogers. The Brankeys have owned the mill since June, 1959. The Rogers operated a feed store on the Days Creek Highway for a year and a half and have closed the store. They are combining stock at the location here, and changing the name to Rogers' Feed Store.

OSC Ruling Upsets Ontario Hog Men

TORONTO — Ontario farmers who want to have their own cooperative meat packing industry, will "fight to the ends of the earth" a ruling of the Ontario Securities Commission that they must stop their $1 million debenture issue.

Charles W. McInnis, president of Farmers' Allied Meat Enterprises Cooperative and of the Ontario Hog Producers' Assn., described the OSC ruling as "a serious error of judgment and we intend to appeal it before the courts."

The FAME debentures, offered to Ontario hog farmers, were intended to raise money for the building of a network of livestock processing plants throughout Ontario, in competition with existing packing plants.

The ruling by O. E. Lennox, OSC chairman, is subject to review by the whole commission. Basis of the OSC ruling is that FAME is not operating as a cooperative and, consequently, is not exempt from provisions of the Securities Act.

Mr. McInnis argues that FAME is a true co-op. He charges that Mr. Lennox's ruling sets a dangerous precedent.

For two years, the McInnis-led hog industry has been fighting a running battle with the Farm Products Marketing Board, accusing it of taking sides with the "big business packing industry."

Imports of Molasses Remain at High Level

WASHINGTON—Imports of industrial and feed molasses stand at a level of over 50% higher than at the same time last year and exports are lower, according to figures from the U.S. Department of Agriculture.

Imports during September totaled 37 million gallons, bringing total imports during the first nine months to 375.9 million gallons as compared to 233.6 million at the same time last year. Imports through September were about 96 million gallons more than for the entire 1959 calendar year.

Principal import sources in September were, by millions of gallons: Cuba, 17.6; Mexico, 7.2; Dominican Republic, 6.1; Jamacia, 2.6, and France, 1.9.

Exports of industrial and feed molasses from the U.S. and its territories in September totaled 0.2 million gallons bringing the total since Jan. 1 to 14.6 million gallons as compared with 17.3 million exported during the same period of 1959. Puerto Rico furnished 12.3 million gallons of the 1960 exports and the remainder came from the mainland.

New Home Office

GAINESVILLE, GA. — American Laboratories is scheduled to move into a new home office and laboratory shortly after Jan. 1. The location will be on the Cleveland highway north of here.

Built on a 70-acre tract, there will be five separate laboratories, cold storage facilities, an egg handling room and general offices, according to Dr. Fred Woodruff, president.

DAFFIN MILL BOOSTS FIRM'S BUSINESS 35%!

OWNER, W. DAVE MOORE

This photo illustrates how flexibly Daffin components can be arranged for operating convenience.

THE SOUTHERN GRAIN & OIL CO., INC., TARBORO, N.C. has increased overall business 35% the first year since installing a Daffin Packaged Feed Mill.

They're now mixing more feed than they ever expected, and giving better service at the same time.

W. Dave Moore, President, says: "Our Daffin has not only brought us more business, but it shows farmers their feed doesn't have to be handled through two or three floors before they get it back!"

This mill is compact, complete in one floor. It is custom arranged to fit the building and is operated by one man. Operation is so dust free the owner says, "We've scarcely had to clean up at all". Some of the other Daffin features include fast roughage grinding, precision mixing, superior molasses blending, plus top economy and low cost maintenance.

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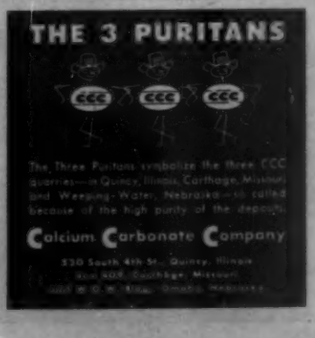

Labor Union Role Discussed At APHF 'Quickie' Convention

By F. C. BISSON
Feedstuffs Special Correspondent

CHICAGO — "The question facing agriculture today, and more particularly, the industrialized poultry field, is not whether organized labor will move into the industry," said Don M. Turnbull, executive secretary of the American Poultry and Hatchery Federation. "Instead, we should wonder how important a role the unions will play in the future."

Mr. Turnbull was speaking at the APHF Midwestern Quickie Convention held in Chicago last week.

"The more an industry integrates, the more vulnerable it becomes to organized labor," said Mr. Turnbull. "Present legislation provides labor unions with the right to organize industries provided the union can obtain a majority vote of the workers.

"If these industries are judged to be in interstate commerce, the employer must bargain with the union when it can show that it has the permission of the majority of the workers to do so."

He cited an example of how a secondary boycott worked out in an incident in Indiana where three hatcheries exist. Although there was a labor controversy between the union and the sexing service that was under contract with the hatcheries, pickets were placed in front of the hatcheries classing them as being unfair to organized labor.

"Actually," Mr. Turnbull said, "much of the poultry industry is exempt from the Labor Relations and the Taft-Hartley Acts because of the agricultural nature of the work."

In conclusion, Mr. Turnbull quoted the NLRB as having defined an agricultural laborer as "an employee on a farm working in connection with cultivation of the soil, harvesting of crops or the raising, feeding or management of livestock, bees or poultry, or employed in any practices performed on the farm as an incident to or in conjunction with such farming operations including the preparation for market, or delivery to storage, to market or to carriers for transportation to market."

John Kraemer, attorney with Gage, Hodges, Moore, Park and Kraemer in Kansas City, Mo., continued this discussion of labor unions in agriculture with his talk, "The Proper Conduct for Management in Labor Negotiations."

Mr. Kraemer pointed out that unions deal exclusively with the employees in organizational matters but only with the employer when it comes to contract negotiations.

"In dealing with this question, each employer should consider whether or not his employees are 'ripe' for an organization drive. Are they paid as well as the average agricultural employee in the area? If so, do these wages compare favorably with wages in industry or business in nearby towns? Do you give any recognition to job assignments, over-time duty and so on?"

He explained that if the answers to these and other similar questions are "no," then an employer may be in for trouble when a union appears and tries to organize.

"The first bit of advice would be for employers to get their house in order," said Mr. Kraemer. "Do what you can, consistent with staying in business and earning a profit, to provide reasonably competitive employment conditions.

"Of course, when an organizer does try to solicit employees, you should not permit him on your property—at least make him do his recruiting on your employees' time and not on the company time. Also, let your em-

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TOWN & COUNTRY PRODUCTS SALES, INC. — Washington, Pennsylvania

NEW ENGLAND
CONCORD PHARMACAL COMPANY — Concord, New Hampshire
ERIKSON FARM SUPPLY CO., INC. — South Acton, Massachusetts
MAINE POULTRY CONSULTANTS — Waterville, Maine

NORTHCENTRAL
CARROLL SWANSON SALES COMPANY — Des Moines, Iowa
HEVNER SERUM COMPANY — Fremont, Nebraska
INDIANA POULTRY SUPPLY COMPANY — Evansville, Indiana
IOWA VETERINARY SUPPLY — Iowa Falls, Iowa
ROBERT J. MATTHEWS COMPANY — Canton, Ohio
NORTHERN STATES LABORATORIES — Luverne, Minnesota
VETERINARY & POULTRY SUPPLY, INC. — Goshen, Indiana
VETPO DISTRIBUTORS, INC. — Holland, Michigan
YARGER POULTRY SUPPLY CO. — Warsaw, Indiana
ZEHR AND COMPANY — Pettisville, Ohio
PRO-VITA CORPORATION — Kansas City, Missouri

SOUTHEASTERN
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H. MARK McNEAL COMPANY — Charlotte, North Carolina
FULLER SUPPLY COMPANY, Birmingham, Alabama
HENDERSON POULTRY SUPPLY — Jackson, Mississippi
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ployees know of some of the disadvantages that come with unions such as loss of take-home pay through union dues, high assessment and initiation fees, loss of pay through a strike and so on.

"When collective bargaining does occur, use skill, fairness and patience. But don't negotiate a 'blind' contract and avoid innocuous concessions that might become headaches," Mr. Kraemer said.

Interstate Regulations

Dr. R. E. Omohundro of the animal disease eradication division in the U.S. Department of Agriculture discussed the "Proposed Regulations Governing Interstate Movement of Chicks, Poults, Hatching Eggs, and Breeding Stock."

Much of Dr. Omohundro's talk was concerned with the proposed rule covering restrictions on the movement of poultry and hatching eggs. Poultry, as well as hatching eggs, can not be moved from one state to another under any circumstances if they are afflicted with either fowl typhoid or pullorum disease, he reported.

Poultry and hatching eggs not affected with these diseases may be moved in interstate commerce when each shipment is covered by a certificate.

The certificate includes such information as names and addresses of the consignor and consignee, date of shipment, name and location of flock origin, breed or strain, number in shipment and a declaration that the flock has been tested for pullorum disease and fowl typhoid and found free of both. Also, there must be a statement to the effect that neither the poultry nor eggs have been exposed to equipment contaminated with these diseases.

(Some people attending the convention voiced strong objections against the use of these certificates. They claimed that this additional paper work was an unnecessary burden on the shipper. Dr. Omohundro replied to this by citing the high degree of success already enjoyed as a result of the National Poultry Improvement Plan and the National Turkey Improvement Plan, and added that further progress is dependent upon still additional controls.

System in Canada

A. D. Davey, director of the poultry production and marketing division in the Canadian Department of Agriculture, discussed "Canada's Experience with Egg Price Supports."

"Price supports for eggs have been in existence for about 20 years in Canada," said Mr. Davey. He described how the egg market "fell on its face" after the export demand faded in 1949, and how their government came to the aid of egg producers in 1950 by making "offers to purchase at a future date." Early in 1958 the system was changed to a "guarantee of immediate purchase."

The problem of over-production became increasingly acute, reported Mr. Davey, and during the 10-month period beginning Dec. 1, 1958, the Canadian Stabilization Board had to buy 20% of the shell eggs marketed through Canadian grading stations.

"This development," he said, "resulted in a situation in which the Canadian government became the largest produce dealer in Canada and put it in about the same spot as the Commodity Credit Corp. occupies on grain in the U.S." This in turn brought our Canadian neighbors face-to-face with the necessity of paying some attention to production controls.

For the past 15 months now, the Canadian egg producer has been on a "deficiency payment" system. Eventually, producers will receive a year-end accounting, according to Mr. Davey, much like the Canadian wheat farmer receives his settlement.

He said that under the present program, egg production has been curtailed and the supply situation has improved. "Producers now have a better chance of success than ever would have been possible under a program that guaranteed a market at a fixed price for unlimited volumes."

Panel members discussing "Multiplication and Distribution Patterns" included Dr. George Godfrey, Honegger Farms, Forrest, Ill.; Fred Ghostley, Ghostley Farms, Anoka, Minn., and H. D. Mangus, Arbor Acres Farms, Thorntown, Ind.

"Multiplication patterns are based largely on the reproductive pattern of the fowl," said Dr. Godfrey, "but distribution patterns are based almost entirely on economics.

"I doubt that this multiplication pattern will change much in the future. As to distribution patterns, one is from the breeder to the poultryman and the other from the breeder through intermediates to the poultryman. Each of the latter has its advantages and disadvantages. Although both will operate in the near future, the efficiencies, economies and service developed by the companies and their personnel in each will determine which is to survive."

Mr. Ghostley said, "I feel strongly that the poultry industry now existing in the Midwest will remain there. The present flock size will increase gradually until we have average size flocks of from 800 to 2,000 birds. Family labor is still available for flocks of this size. I believe that at least half, and possibly nearly 75% of the poultry raised in the middlewest is to be independently or homeowned; the remainder will be controlled by some source other than the producer."

"There is an old axiom: 'Be not the first by whom the new is tried nor the last to cast the old aside,'" said Mr. Mangus.

"This axiom is always a sound one on which to operate. Arbor Acres will deviate from this axiom when we think that we are on the right track, however."

C. W. Knauf, Weinberg & Co. produce firm in Chicago, said in his talk, "How Do You Sell Eggs," that the decline in egg consumption in the face of the sharply increased population in the nation is due largely to the successful promotion of packaged breakfast foods.

Regarding egg prices, Mr. Knauf said that the market in New York no longer determines the selling price of eggs in other areas. "Over-supplies along the east coast are now a local affair and should exert no influence on egg prices in other sections of the country where supplies fall below consumer requirements."

AOAC Releases New Analytical Text

WASHINGTON—The ninth edition of Official Methods of Analysis for such products as foods, food additives, drugs, cosmetics, pesticides, feeds and fertilizers is now being distributed by the Association of Official Agricultural Chemists (AOAC).

The book is available from the association, Box 540, Benjamin Franklin Station, Washington 4, D.C. Its cost is $17.50.

The 832-page compilation is the primary source of methods of analysis used by the Food and Drug Administration, U.S. Department of Agriculture, and other federal and state governmental law enforcement agencies in the U.S. and throughout the world.

The AOAC is the organization of federal and state scientists which provides the methods of analysis required for regulatory and research work on agricultural commodities.

The methods are tested and approved through a cooperative program involving government, university and industry chemists. Three hundred chemists and microbiologists are engaged in testing methods ranging from "agricultural liming materials" to "waters." Only when these methods are demonstrated to be accurate and reproducible are they approved by the association.

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North Carolina Feed Men Told Efficient Family Farm Secure

By Special Correspondent

RALEIGH, N.C. — No corporation farm can compete with a really efficient family farm, Arthur M. Upshaw, Mocksville, president, North Carolina Feed Manufacturers Assn., told the more than 130 feed men from 15 states attending the Animal Nutrition Conference Dec. 1-2 at North Carolina State College here.

Mr. Upshaw emphasized that the key to competition between family and corporate farms is efficiency.

The association head also advised his colleagues who are concerned about employment opportunities for farm youths. He urged the feed men to help these youths get the education they need to enter an agriculturally related business. Additional scholarship funds were suggested as a means of providing the help.

Mr. Upshaw, outgoing president of the feed association, presided over the opening session of the two-day conference.

Commissioner L. Y. Ballentine, North Carolina Department of Agriculture, welcomed the group. He took a swipe at "the preachment that the way to save agriculture is to increase the size of farming operations. As long as the man producing raw material must get supplies from industries with planned economics, he needs equal treatment," Mr. Ballentine said. He added that he hoped the new administration would take a more sympathetic view toward the problems of farmers.

He said that all that is needed is for policy-makers to face up to realities. "They should treat agriculture on the basis of what it is rather than what they would like for it to be."

Mr. Ballentine pointed to what he called two different philosophies toward the working man of America. "In industry," he said, "the trend is to divide up labor among more and more people and increase their wages. Taxpayers, as consumers, eventually pay the cost. But in agriculture, less and less people are expected to produce more and more products for less and less money."

Potentiation

E. B. Patterson, Chas. Pfizer & Co., Terre Haute, Ind., began the instructional portion of the program with an address, "Potentiation of Antibiotics in Animal Nutrition."

"Potentiation" and "enhancement of antibiotic blood serum levels," he stated, are essentially synonymous. They refer to increasing antibiotic concentrations in blood serum of animals or birds by adjusting certain components of the ration or by use of certain feed additives.

"It was observed in the laboratory," he continued, "that most antibiotics did not exert the same degree of antibacterial activity in milk as they did in the usual bacterial culture media."

He said that the cations—magnesium and calcium—were found primarily responsible for the lowered activity in milk. These two cations were responsible for essentially all of the antagonistic action of milk upon tetracycline antibiotics.

Discussing poultry rations, in which calcium requirement is relatively high, preliminary feeding studies, in which calcium and phosphorus levels of the diet were altered, showed that Terramycin absorption from the gut was appreciably increased when the calcium was lowered or the phosphorus increased.

"Another somewhat less effective and more expensive method of increasing antibiotic serum levels," he added, "is by the use of certain feed additives. Such additives may function in one of two ways: (1) by forming strong complexes with calcium within the intestine, thus permitting increased absorption of the antibiotic as in the case with sodium metaphosphate, citric acid and oxalic acid, or (2) by a still not too clearly defined mechanism which apparently acts independently of calcium in the digestive tract."

Both potentiation methods, he continued, can be applied simultaneously resulting in an additive enhancement of blood levels. Apparently, the reduction of calcium increases the amount of antibiotics going into the blood stream and terephthalic acid further raises serum concentrations.

"Recently," he reported, "it has been demonstrated that the degree of dietary calcium interference with antibiotic absorption from the intestine varies with the type of calcium compound used. Subsequently, experimental results have indicated that, when calcium sulfate is used in place of calcium carbonate and dicalcium phosphate is partially replaced with colloidal or soft phosphate as dietary sources of calcium and phosphorus, antibiotic blood serum levels of greater magnitude are obtained in both poultry and swine."

In concluding, Dr. Patterson urged that prompt consideration be given to the possibility of more effective control of infectious diseases through potentiation antibiotics in medicated feeds.

"Preliminary studies in our laboratories," he added, "have shown that, with both oxytetracycline and chlortetracycline, therapeutic effects are strongly enhanced by temporary reduction of dietary calcium or by the inclusion of terephthalic acid, or both. This has been found in synovitis, coccidiosis, fowl cholera and chronic respiratory disease. Investigations of other diseases are under way."

Unidentified Factors

Following a discussion period, Dr. M. L. Scott, Cornell University department of poultry husbandry, spoke on unidentified growth factors for poultry.

"Although growth of chicks and poults can be achieved with highly purified diets scientifically formulated to contain only the known nutrients in adequate amounts," he began, "the growth rates obtained still are not as great as those which can be achieved when diets are supplemented with certain natural feedstuffs such as fish solubles, liver, brewers yeast, distillers solubles and whey."

He stated that poults grow very poorly when fed purified diets containing no supplemental sources of unidentified growth factors indicating, therefore, that one or more of these factors is of vital importance in poult nutrition.

Discussing the results of research at Cornell and elsewhere, he stated that the information indicated the existence of possibly seven different unidentified growth factors:

(1) A factor associated with proteins, especially vegetable proteins.

(2) A factor in fish solubles, also present in other animal products such as liver, whey, and other milk by-products.

(3) A fermentation solubles factor present in dried distillers solubles, dried brewers yeast and other fermentation products.

(4) A grass juice factor present in the juice of fresh grasses and legumes and also present to some extent in milk by-products and in dried brewers yeast, but not in dehydrated grass or alfalfa meal.

(5) A vegetable fat factor appears to be present in all of the highly unsaturated vegetable fats and in egg yolk fat and in limited amounts in lard, but is not present to any extent in coconut oil and tallow.

(6) A factor capable of improving the utilization of dietary zinc appears to be present in liver, distillers dried solubles, fish solubles and whey, and may be substituted for by the chelating agent, ethylenediamine tetraacetic acid.

(7) A factor which improves the utilization of arginine, present in liver and peanut meal.

Dr. Scott pointed out that there are indications that an amino acid imbalance in casein creates a demand for additional arginine. It appears, however, that growth may be improved when a casein diet is fed, either by increasing the arginine level to overcome an imbalance of amino

TABLE 1. The Amino Acid Needs of Swine at Various Stages of Development (Percent of Diet)

	Baby pig (10 lb.)	Weanling pig (30 lb.)	Finishing pig (100 lb.)
Level of dietary protein, %	22	16	12
Arginine	0.37	0.25	0.15
Histidine	0.34	0.23	0.14
Isoleucine	0.76	0.52	0.31
Leucine	0.98	0.67	0.40
Lysine	1.08	0.74	0.44
Methionine*	0.73	0.50	0.30
Phenylalanine*	0.79	0.54	0.32
Threonine	0.66	0.45	0.27
Tryptophan	0.18	0.12	0.07
Valine	0.67	0.46	0.28

*Cystine can satisfy 40% of the total need for methionine and tyrosine can satisfy 30% of the total need for phenylalanine.

TABLE 2. Performance and Vitamin A Levels of Blood Serum and Liver of Pigs Fed Three Forage Meals

Criterion	Negative control	Positive control	Alfalfa 3%	Bermuda 3%	Sericea 3%	Alfalfa 10%	Bermuda 10%	Sericea 10%
Av. int. weight, lb.	44	42	45	48	45	49	46	44
Av. fin. weight, lb.	171	205	200	202	199	196	195	193
A.D.G., lb.	1.44	1.67	1.70	1.71	1.63	1.51	1.54	1.56
Av. daily feed, lb.	5.74	6.48	6.90	6.77	6.82	6.72	6.86	7.03
Feed/gain	3.85	3.70	3.80	3.98	4.05	4.26	4.26	4.23
Serum vitamin A, mcg./100 ml.	7.0	17.0	13.2	14.3	14.3	17.6	17.5	...
Liver vitamin A, mcg./gm.	.67	109.10	5.90	7.02	8.69	24.21	24.23	27.37

TABLE 3. Performance and Carcass Data of Pigs Fed Rations Containing Different Levels of Energy and Protein

(Initial weight 31 lb., final weight 205 lb., six pigs/treatment)

Protein level*	15	15	15	9	9	9
Added fat level	0	10	20	0	10	20
Average daily gain	1.90	1.93	1.74	1.58	1.11	.73
Average daily feed	6.11	5.16	4.16	5.55	4.12	2.16
Feed/lb. gain	3.20	2.68	2.39	3.52	3.70	2.94
Carcass data—						
Average back fat	1.63	1.59	1.04	1.77	1.79	1.65
Area loin eye	4.31	5.06	4.24	4.19	3.72	3.68

*Quality of protein was equalized in the 15 and 9% protein diets.

TABLE 4. Performance of Pigs Fed Rations Containing Two Protein and Energy Levels with High and Low Quality Protein

(Initial weight 37 lb., final weight 200 lb., eight pigs/treatment)

Treatment	——Protein quality equalized——				Low quality protein	
Protein level	14	14	10	10	10	10
Fat level	0	10	0	10	0	10
Average daily gain	1.69	1.77	1.71	1.44	1.05	.98
Average daily feed	6.71	5.86	6.51	5.09	4.95	4.05
Feed/lb. gain	3.97	3.31	3.80	3.53	4.70	4.13
Carcass data—						
Average back fat	1.69	1.83	1.78	1.79	1.64	1.60
Area loin eye	4.35	4.33	4.25	4.25	4.02	4.19

TABLE 5. Effect of Diet and Feeding System on Egg Production, Feed Per Dozen Eggs, Mortality and Body Weight

Diet	Per cent egg production	Feed per doz. eggs, lb.	Per cent mortality	Final body weight, lb.
955 Cal. control	49.6	7.6	15.0	8.1
855 Cal.	49.2	8.2	17.5	8.8
755 Cal.	42.1	9.7	2.5	7.3
955 Cal. limited	49.7	6.3	2.5	8.2

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acids, or by supplementing the diet with an unidentified growth factor which may be concerned in the proper utilization of arginine.

Addition of zinc to practical diets, he added, has been shown to improve growth and feed conversion on these diets to approximately the same extent as that obtained by adding certain "vitamin carriers."

Concluding his talk, Dr. Scott said, "In view of the growing indications of interrelationships between stress and nutrient requirements, including the requirements of unidentified growth factors, it seems advisable to include, insofar as possible, some source or sources of unidentified growth factors in rations of young chicks, poults and other young livestock."

C. S. Reed, Duke Power Co., Charlotte, spoke at a luncheon meeting on "Changing Times." The luncheon was given by the North Carolina Feed Manufacturers' Allied Assn. and W. T. Houston, K. S. Crittendon, Inc., Charlotte, presided.

Dr. G. H. Wise of the North Carolina State College department of animal industry presided over the afternoon session. Speakers included Dr. O. G. Bentley, South Dakota State College; Dr. D. E. Becker, University of Illinois, and Dr. J. E. Corbin, Ralston Purina Co., St. Louis.

Use of Urea Grows

Dr. Bentley, dean of agriculture at South Dakota State College, presented a talk on the use of urea and other sources of non-protein nitrogen for ruminants. He pointed out that the continued increase in the use of non-protein nitrogen, primarily urea, in ration formulation for ruminant animals is a clear indication of their acceptance by the feed industry and the livestock industry.

Common non-protein nitrogen sources are ammoniated feeds such as ammoniated beet pulp, ammonium salts, urea and supplements formulated from it, and a small prcentage of NPN (non-protein nitrogen) compounds found in natural feedstuffs representing 0.3-4.5% of their nitrogen content. For practical purposes, urea is the major NPN source with about 75,000 tons used annually in feeds.

Discussing how much urea should or can be fed ruminants, he gave the general recommendation of not more than 1% of the total ration and not more than one-third of the crude protein excluding the protein from the roughage.

Palatability of high urea supplements (up to 10%) fed with high grain rations is satisfactory, presumably because the supplement is diluted by the grain portion of the ration.

Rations high in readily available energy, he continued, encourage rapid bacterial multiplication and growth in the rumen and hence more rapid assimilation of urea nitrogen into bacterial protein. Another important factor appears to be the level of volatile fatty acids in the rumen. Rumen conditions are not as favorable for urea nitrogen assimilation when high roughage rations (lower in readily available carbohydrates) are fed.

Urea containing supplements, when properly used, are satisfactory supplements in wintering type rations for cattle and sheep on range.

Commenting on an Ohio research project, Dr. Bentley reported that it was found that up to 20 lb. of urea per ton of fresh chopped corn resulted in good silage. Results of North Carolina studies were less favorable; thus this system of urea feeding is not being generally recommended.

He pointed out that supplements for fattening cattle, sheep and dairy cattle containing 6 to 8% urea have been successfully marketed for several years. An interesting aspect of the Purdue studies is the addition of the amino acid, lysine, to these high urea supplements. The added lysine increased the rate of gain and feed efficiency, suggesting that the rate of lysine synthesis in the rumen when high urea rations are fed may be limiting.

He concluded that urea nitrogen is completely available although utilization can vary with the amount fed and type of ration.

Swine Nutrition

Dr. Becker, department of animal science, University of Illinois, discussed the protein and amino acid nutrition of swine.

"Recent swine research," he said in opening his talk, "has placed a greater emphasis upon an elucidation of the amino acid requirements of swine."

Speaking of the amino acid needs of swine, he reported that the needs are not the same at all levels of protein. "For instance, Becker et al. have presented convincing evidence that the isoleucine requirement was markedly different at two protein levels. Likewise, Brinegar et al. have observed a similar relationship between lysine and protein, and McWard et al. have been able to corroborate this finding."

Findings from the Illinois station give the estimated essential amino acid requirements of the pig at various ages presented in Table 1.

After discussing research on amino acids as supplements in practical rations and its replacement for a part of supplementary protein, Dr. Becker said, "It seems certain that interest in this area of research will continue and will eventually result in low-protein rations adequately balanced in amino acid content."

Dog Nutrition

Dog nutrition was covered by Dr. Corbin. He stated that dogs require some 43 different nutrients which must be available in just the correct amounts if maximum performance is to be expected. Nine of these nutrients are indispensable amino acids which are generally included in the classification—protein.

"The dog," he reported, "requires 17 well-balanced proteins for growth. The quality of the protein is important; quality here indicates the quantity and availability of the amino acids required for growth, reproduction and lactation. These indispensable amino acids must be provided in the diet since they cannot be synthesized in the body."

The energy level in the dog's ration, he said, can come from the protein, fat or carbohydrates. It is customary to depend on the ration fat and carbohydrate for the major supply of energy.

Fat is a concentrated source of energy which is "burned" in the animal body or stored as fat. Fats contain 2¼ times as much energy—pound for pound—as either carbohydrates or proteins.

"The National Research Council," he explained, "recommends a level of 5% in the ration since this level of 'normal' fats will supply an abundance of unsaturated fatty acids for dogs. Carbohydrates for dogs are supplied by cereal grains, molasses and sugar."

Dr. Corbin reported that dogs require the following minerals: calcium, phosphorus, sodium, chlorine, potassium, manganese, magnesium, iron, copper, cobalt, iodine and sulfur.

Commenting on the mineral needs, he stated, "The total amount of calcium and phosphorus varies with age with young growing puppies requiring the most generous supply. Generally the level of 1.2% calcium to 1% phosphorus will supply adequate quantities of these minerals. Relatively large amounts of sodium, chlorine, magnesium and potassium are required. The National Research Council suggests levels of .55% sodium, .85% chlorine, .45% magnesium and .8% potassium. Smaller amounts of iron, copper, cobalt, manganese and iodine are required."

He reported that the list of vitamins required by the dog indicates the complexity of balanced dog rations. All animals require a dietary source of vitamin A. A lack can cause deafness and congenital malformations in dogs. A deficiency of vitamin A is harmful and an excess can result in drying and peeling of the skin, bone fragility and loss of hair.

A deficiency of vitamin D will show up in poor bone growth—a lack of calcium deposits in the growing portion of the bone. Vitamin E acts as a biological antioxidant in the body. A deficiency of it is associated with muscular dystrophy, exudative diathesis in some animal edema, not carrying offspring to parturition.

Low vitamin K results in increased blood clotting time and a low prothrombin concentration. A deficiency will cause dogs to hemorrhage also.

Biotin, he continued, is a growth factor for dogs and other animals, a deficiency is sometimes seen in scaly dermatitis. Choline is necessary to prevent liver cirrhosis. Vitamin B_{12} is the so-called anti-anemic factor and growth factor. A deficiency of folic acid means growth is extremely poor and the skin becomes keratotic. Inositol stimulates growth and a lack of it can cause loss of hair and severe dermatitis.

A shortage of niacin results in delayed growth and development of the young, diarrhea and dermatitis, pellagra of "blacktongue" in man and can even cause perosis in some animals. Pantothenic acid deficiency in dogs causes a loss of color in hair and anemia.

Riboflavin plays an important role in vision and thiamine is associated with carbohydrate metabolism in the body. A shortage of the latter causes a retardation of growth and loss of appetite.

Dr. Corbin ended his talk by saying that the nutrition of dogs is a highly advanced science and that manufacturers of commercial dog food have a strong obligation to both the dog owner and the dog.

On the Dec. 2 program, J. L. Reitzel, assistant commissioner, North Carolina Department of Agriculture, presided over the final session of the conference.

Alfalfa Replacements

Two North Carolina State College professors opened the meeting with a discussion of dehydrated Bermuda grass and Sericea Lespedeza as replacements for alfalfa in the diets of poultry and swine.

Dr. C. H. Hill, poultry science department, presented a talk on this topic in poultry feeds. He discussed five trials with broilers raised in batteries up to four weeks and broilers raised to 10 weeks, turkeys and laying hens.

The results of the battery trials indicated that either Sericea Lespedeza or dehydrated Coastal Bermuda grass was as good a source of carotene as alfalfa for chicks in this early period of growth. In addition, it was shown that levels as high as 10% of the total feed did not produce any significant impairment of growth. Thus, there was no evidence of any detrimental effects even at these high levels.

In the broiler trial, conducted under practical conditions in floor pens, both the Bermuda grass and Lespedeza at 3% of the diet were superior to the sample of alfalfa with which they were compared as far as weight, mortality and feed efficiency were concerned.

When either alfalfa or Lespedeza was fed at 5% of the total feed to laying hens on a soybean meal-yellow corn meal basal, there was no significant difference in production.

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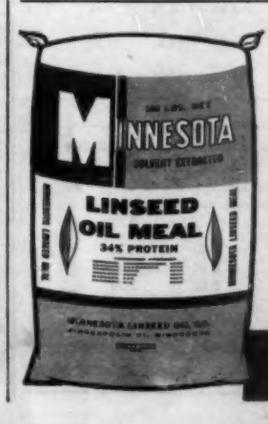

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Sericea Lespedeza supplements increased the weights at six weeks of age. The increase was most striking with alfalfa and Bermuda grass.

Dr. M. B. Wise, animal husbandry section, reported on the use of the Bermuda grass and Sericea Lespedeza as replacements for alfalfa in swine rations. His talk covered a comparison of the influence of various forage meals on performance as well as blood serum levels and liver storage of vitamin A of growing-finishing swine.

One hundred four weanling pigs were allotted to eight treatments with 13 pigs per treatment and fed a low vitamin A basal ration alone or supplemented with 3% or 10% of dehydrated alfalfa, Coastal Bermuda or Sericea Lespedeza meal. Growth, blood serum vitamin A levels and liver vitamin A storage were markedly similar among pigs fed the three forage meals. When comparisons were made between the 3% and 10% levels of forage meals, the 10% level resulted in decreased body weight gains but increased stores of liver vitamin A and increased blood serum levels of vitamin A.

Figures presented in Table 2 were the results of the research according to average values on feed lot performance and vitamin A levels of blood serum and livers.

Calorie-Protein Ratios

"Calorie-Protein Ratios for Growing Pigs" was the topic of Dr. A. J. Clawson of the college's animal husbandry section.

Dr. Clawson cited research which shows the need for considering the protein level of the ration as a function of its energy density. He pointed out studies which showed that broiler rations which were inadequate in protein in either quantity or quality induced over consumption of feed, decreased feed conversion, increased fat deposition and eventually impaired growth.

He pointed out that this was particularly evident when high energy rations containing added fat were fed.

He cited a study by Sewell (1957) showing that the protein requirement increased as the energy content of the ration was increased.

By way of summary, Dr. Clawson said:

(1) The protein requirement of weanling pigs is influenced by the energy content of the ration fed.

(2) Daily gain of pigs is depressed when an excess of energy, in relation to protein in the diet, is fed.

(3) Pigs apparently are not able to compensate for inadequate protein intake by overconsumption of other nutrients in an effort to meet their protein needs.

(4) Protein quality (ratio of amino acids) in the ration is more closely associated with pig performance than is the ratio of energy to protein.

(5) Pigs can perform normally when fed rations containing widely differing ratios of energy to protein.

Dr. Clawson used Tables 3 and 4 in his discussion.

Caloric Intake

The final talk for the conference was given by Dr. J. W. Kelly of the State College Department of Poultry Science, "Limiting the Caloric Intake of Broiler Breeder Hens."

"Poultrymen and research workers," he began, "are constantly seeking means of improving egg production and decreasing the mortality in layer-flocks of both production and meat-type strains."

He reported on a study by the North Carolina Experiment Station to see the effects of restricting the caloric intake on egg production, mortality and feed conversion by using a meat-type strain of chicken.

The experiment used 160 white Plymouth Rock pullets, housed in individual layer cages for 36 weeks. These birds were exposed to all-night lights during the study. The pullets were divided into 16 lots and each lot contained 10 birds. Four lots were fed each diet.

All diets contained approximately 17.5% crude protein. The control diet contained 955 calories of productive energy per pound whereas two experimental diets contained 855 and 755 calories per pound. Finely ground corn stover was used to replace ground yellow corn to reduce the caloric content of these diets. These three diets were fed ad libitum. The fourth diet contained the same number of calories of productive energy as the control diet and was fed by doling out a given quantity of feed weekly. An attempt was made to apply a formula as a basis of restriction and it was observed that too much feed was provided for the birds to completely clean up in 24 hours. Thereafter, an attempt was made to provide sufficient feed for the feed troughs to remain empty for approximately four hours each day. All birds were fed around 3 p.m. each day.

There is no significant difference between the egg production rate of the lots receiving the 955, 855 and 955 (limited) diets. The egg production rate of the birds fed 755 calorie diets was significantly lower than the other treatments. The quantity of feed per dozen eggs increased with a decrease in the caloric level of the diet. Limiting the quantity of feed weekly resulted in less feed required to produce a dozen eggs. Results are shown in Table 5.

Roy Trout Retires From Fox Company

NEWFIELD, N.J.—G. Leroy Trout, longtime customer service manager for The Fox Co., has retired after more than 23 years with the Newfield firm.

G. Leroy Trout

Mr. Trout was previously office manager and traffic manager for the firm.

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REGIONAL CREDIT MANAGER—MAJOR and expanding feed manufacturer offers challenging opportunity for experienced feed credit man in southeastern United States. Attractive salary and other benefits. Please send brief resumé of background and experience to: Personnel Department, Hales & Hunter Co., Red Comb Pioneer Mill, 141 West Jackson Blvd., Chicago, Ill.

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ASK FOR USED LIST NO. 161 COVERING grain, feed, seed and flour equipment. McLaughlin, Ward & Co., Jackson, Mich.

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WHIRLAWAY AIRBLAST CAR LOADERS, cast iron pulleys, new and used feed and elevator equipment. Hagan Mill Machinery, P.O. Box 574, Jefferson City, Mo.

1957 MELOS PORTABLE FEED MILL, with mixer and molasses attachment. Good condition. Any reasonable offer accepted. Virgil McLane, Cambridge, Ill.; Phone 75754.

FOR SALE — 1956 CHAMPION MOBILE mill and mixer with molasses blender. Mounted on 1956 C-600 Ford cab forward. Both units in excellent condition. Priced right. Emmetsburg Grain Co., Emmetsburg, Iowa.

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FOR SALE—CARTER DISC SEPARATOR 24-27; 10 bu. grain scale, in original crate; 2 ton Eureka horizontal mixer with 49 H.P. motor and drive. J. E. Hagan Mill Machinery, Hwy. 50 West, Jefferson City, Mo.

FOR SALE—ENCLOSED MOTORS; RICHardson scale; truck scales; hammermills; oat crimpers; horizontal and upright feed mixers; sewing machines; elevator legs; screw conveyors; molasses mixers and pellet mills. J. E. Hagan Mill Machinery, Box 574, Jefferson City, Mo.

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WANTED TO BUY — RICHARDSON Scales, bag closing machines and other good mill, feed and elevator equipment. J. E. Hagan Mill Machinery, Jefferson City, Mo.

Beef Numbers Reported For Arizona, California

WASHINGTON—U.S. Department of Agriculture officials have reported that on Dec. 1, cattle and calves on feed for market in Arizona and California totaled 1,016,000 head. This number is 1% below Nov. 1, but 9% higher than the 93,000 on feed in these two states a year earlier.

Arizona: Cattle and calves on feed for market in Arizona on Dec. 1 totaled 268,000 head, up 10% from a month earlier, and 1% above the 265,000 head on feed at the same time in 1959.

Cattle and calves placed on feed during November amounted to 63,000 head, 29% above November last year. Fed cattle marketings totaled 38,000 head this November, compared with 33,000 head last November.

California: A total of 748,000 head of cattle and calves were on feed for market in California on Dec. 1. This was 4% below Nov. 1, but 12% above the 665,000 head on feed a year earlier. Placements of cattle and calves on feed during November at 113,000 head were down 7% from November last year. November marketings of fed cattle from California totaled 148,000 head, 3% higher than last November.

New Equipment Cuts Egg Handling Costs

WASHINGTON — Addition of mechanical sizing and packaging of eggs to a semi-mechanized grading and packing line can cut the total cost of the operation by about 10¢ a case below the cost of many methods now widely used, according to a research report issued by the U.S. Department of Agriculture.

The mechanical sizer and packager were developed through research performed under a contract with the agricultural marketing service, as another step toward complete mechanization of egg handling.

The improved packing line mechanically sorts eggs by sizes, electronically eliminates those containing bloodspots, turns the small ends of the eggs down, and places them in one-dozen cartons. Manual work remaining consists largely of starting the eggs into the mechanical line, taking out dirty, cracked, or misshapen eggs, packing the cartons into cases, and providing empty cartons and cases.

The new devices performed well in tests conducted under actual commercial operating conditions. The report, part of a broad program of AMS research to improve efficiency and expand markets for farm products, emphasizes the importance of operating and maintenance procedures, and product quality.

A copy of the report, "Automatic Sizing and Packaging of Eggs," Marketing Research Report No. 424, may be obtained from the Office of Information, U.S. Department of Agriculture, Washington 25, D.C.

Albers Milling Co. Promotions Announced

LOS ANGELES — H. Everett Olson, president of the Albers Milling Co., division of Carnation Co., has announced a series of promotions within the milling firm's production organization.

Clarke Nelson, division staff assistant, was named assistant to executive vice president G. A. Ensminger, with broadened administrative responsibilities. Fred Karlsrud, who has been superintendent of the Albers, Oakland, Cal., mill since 1954, was appointed general production manager responsible for all milling operations. He succeeds the late Francis Albers.

Michael Low and Robert McElhiney, who both served as assistants to Mr. Albers, were named production managers, respectively, for cereals and pet foods and for feeds.

Harold Vickery, assistant superintendent of the firm's Oakland mill, was appointed superintendent, succeeding Mr. Karlsrud.

Also announced was the promotion of Robert Hannahs to sales manager of the company's feed division for the West Coast. He formerly was a staff assistant to the executive vice president.

Hog Cholera Cases Increasing in Canada

OTTAWA—Ten cases of hog cholera were reported in Quebec province recently, making a total of 23 in southwestern Quebec and two in eastern Ontario reported since the beginning of October.

A spokesman of the health of animals division, Canada Department of Agriculture, said the most recent outbreaks were attributed to feeding uncooked pork meat scraps from the owners' kitchens, and he warned that all such wastes fed to swine must be properly cooked. Alternatively, all pork and meat scraps should be removed before wastes are fed to the animals.

Swine slaughtered to date number 7,159 and compensation paid totals $195,666.

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Harvest Brand Broadens Stock Ownership

PITTSBURG, KANSAS — Rapid growth of Harvest Brand, Inc., mineral and protein feed supplement manufacturer located here, has prompted the company to broaden its stock ownership to enable a continuation of this expansion.

S. D. Fuller & Co., a New York managing underwriter, announced in September that a 191,667-share ($1,115,002) combined offering of Harvest Brand, Inc., common stock was oversubscribed and the books closed. The common was offered to the general public at $6 per share.

In a preliminary prospectus put out by the underwriter, it was noted that 150,000 shares of the offering were being sold by the company and 41,667 shares by stockholders. A total of 375,000 shares are outstanding.

Harvest Brand, Inc., was incorporated in 1956 to succeed an individual proprietorship established by George A. Clugston, company president. The firm is engaged primarily in the formulation, manufacture, distribution and sale of feed supplements, minerals and pre-mixes. Harvest Brand products are marketed under the trade name of "Stockade," a trademark used since 1940. Stockade minerals were manufactured in Fort Scott, Kansas, until in 1956 when Mr. Clugston established his plant and offices in Pittsburg.

Stockade supplements are produced in both free-flowing and block form. The company is currently using two 1,000-ton presses, capable of producing blocks from unusual formulas without the addition of binders. Produced in block form by Harvest Brand are mineral mixes, protein supplements, trace-mineral salt, phenothiazine mineral mixes and phenothiazine salt mixes. Part of the proceeds ($300,000) from the stock sale is to be used to build a new automatic plant in the Pittsburg area, the prospectus noted.

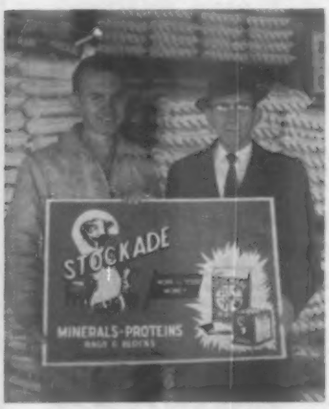
Harvest Brand sales have shown rapid growth in its four years. Sales in 1956 amounted to $152,880. By 1959 the sales volume totaled $1,264,397. And in the first 10 months of 1960, sales were running 43% ahead of the same period in 1959. Net earnings of $82,906, or 37¢ per share on the common stock outstanding Dec. 31, 1959, were reported.

Harvest Brand sells 85% of its products within a 500-mile radius of Pittsburg. Ten company salesmen work directly with more than 3,000 jobber and dealer accounts, primarily in the states of Kansas, Missouri, Nebraska, Iowa, Arkansas, Oklahoma and Texas. Recently sales efforts have been extended into the states of Illinois, Ohio, Kentucky, Tennessee, Alabama, Mississippi, Louisiana, New Mexico, Colorado and Wyoming. Further expansion of distribution is planned, according to the prospectus.

A fleet of 20 company-owned diesel tractor-trailers delivers Stockade products from the Pittsburg location. This factory area consists of two steel and concrete buildings bought in 1956 and a new brick and steel building completed early in 1960 for use as executive offices, warehouse space and a loading dock for truck and rail delivery. The company has approximately 85 employees.

Dr. Marcus Hoelscher, who received his Ph.D. from South Dakota State College, joined Harvest Brand last January to head the nutrition and research department.

The company's officers, besides Mr. Clugston, president, are Mr. Clugston's son, G. Doyle Clugston, vice president, and Fred Mitchelson, secretary-treasurer and general counsel.



STOCKADE — To permit continued growth, Harvest Brand, Inc., recently became a publicly-owned corporation. Shown above with the "Stockade" trademark carried on all Harvest Brand feed products are G. Doyle Clugston, vice president, and his father, George A. Clugston, president. Part of the proceeds from the recent stock sale will be used to build a new automatic plant near Pittsburg, Kansas, home of the company since 1956.

Colorado Spring Feeder Market Looks Strong

FORT COLLINS, COLO. — It appears that Colorado cattlemen will have a strong market for feeders next spring, according to Kenneth Jameson, extension farm management specialist at Colorado State University.

Mr. Jameson said Colorado feeders didn't buy as many calves as usual this fall which should increase demand for feeders next spring. They bought yearlings instead.

He attributed the strong fall demand for stocker feeders to good wheat pasture in Texas, Oklahoma, Kansas and parts of eastern Colorado.

Weather and the condition of this wheat pasture could affect the slaughter market in the next few weeks, Mr. Jameson said. A storm on the plains could throw a large number of lightweight slaughter cattle on the market.

The lack of buyers for calves this fall will likely increase marketing of stocker-feeders next fall because of the holdover of calves.

S. Howes Co. Gets Tester Distributorship

SILVER CREEK, N. Y. — The S. Howes Co. of Silver Creek will act as sole distributor of Universal moisture testers to all grain processors within the U.S., according to an announcement by George R. Willis, company vice president in charge of sales.

Mr. Willis said that his entire staff of sales engineers has been equipped with models of the Universal moisture tester since Dec. 1.

"Moisture content is of vital concern to grain handlers and processors everywhere. These portable units will enable our men to render a valuable service through accurate and on-the-spot measurements of any grain sample," said Mr. Willis.

Universal moisture testers are designed and produced by the Moore-Milford Corp., Skokie, Ill.

ANIMAL RESEARCH IS BIG BUSINESS

CHICAGO—The magnitude of animal science research projects being carried on was evident at the annual meeting of the American Society of Animal Production in Chicago. At this two-day meeting, 638 scientists reported results of experiments in 332 scientific papers.

Besides the many laboratory experiments reported, there were 104 feedlot experiments with 36,370 cattle involved. In 58 experiments reported, 4,990 hogs were studied.

A surprising fact is that experiments with sheep were more numerous than those with hogs—72 sheep experiments were reported involving 7,435 sheep. Researchers say this is probably due to the ever-increasing number of digestive experiments conducted within the rumen of live animals.

There were 234 experiments using 48,795 cattle, sheep, hogs and goats. A conservative estimate of time put in by each tested group would be 90 days.

Figuring 90 days of study on each animal, the total amount of time consumed in the investigations during the year would be equivalent to 12,032 years of research if the work had been carried out consecutively as a single project.

Going the other way, since the animals were used for an equivalent of 24 hours a day for 4,391,550 days, they gave 105,397,200 hours to science. To really stagger the imagination, you can multiply this figure by 3,600, the number of seconds in an hour!

South Carolina Tests Cattle Reactions To Pelleted Hay

CLEMSON, S.C.—Tests are under way here to see how southeastern cattle react to pelleted hay as compared with baled.

Preliminary investigations show that dairy heifers gain faster on the pellets.

The dairy department at Clemson College has completed four experiments on the growth of yearlings. Baled alfalfa, pelleted alfalfa, baled coastal bermuda and pelleted were used. A pelleted coastal bermuda with 5% blackstrap molasses was also used.

Groups of four yearling heifers each were used and the first two trials were of 28 days' duration. The last two were of 112 days. Both controlled and free choice feeding methods were used with concentrate feeding controlled in all of the trials.

The first two trials showed that controlled feeding limits any beneficial results, including daily gains, that might be expected from feeding pellets. However, when fed equal amounts, the group receiving baled alfalfa gained faster than the group getting pelleted alfalfa.

When the hays were fed free choice there was a difference. The group fed pelleted alfalfa in the 112-day trials by free choice made faster gains. In both trials the group receiving pelleted coastal bermuda gained at a faster rate than the baled alfalfa or the baled coastal bermuda.

The tests will be continued during the winter months.

Caged-Layer Growth

BIG SPRINGS, TEXAS—The John Davis Feed Store, one of the first firms in Texas to introduce caged layers, has become the largest poultry operator in this area. The company has 10,500 caged hens.

In 1952, John Davis induced about 10 farmers to put in caged houses, but after a few profitable years, low egg margins forced many to sell out. Mr. Davis bought many of the cages, put in his own poultry farm and has expanded ever since.

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NTF

(Continued from page 1)

half-day "research clinic" programs will be presented instead of one as in past years. These are scheduled for Wednesday and Thursday mornings, Jan. 4-5.

Wednesday afternoon's program will be devoted to cost-cutting discussions. Speakers will offer their answers to these questions: Are feed costs too high? Are poult costs too high? Are management costs too high?

Scheduled for Thursday afternoon is the "Promotion and Merchandising Clinic," which will include a "live" display of new turkey products, a professional presentation of turkey promotion and merchandising methods and a description of new and different market opportunities.

Workshops for breeders will be conducted Friday afternoon, Dec. 6, and Saturday, Dec. 7. The Friday morning workshop will be open to anyone wishing to attend, but Saturday's program at The Quaker Oats Co. research farm, Libertyville, Ill., will be limited to the 40 persons who have registered in advance for the special program.

Also scheduled for the convention are the commercial exhibits, the competitive National Dressed Turkey Show and the non-competitive Random Sample Test Display.

Thursday's program will include the ladies' luncheon and fashion show at the Marshall Field & Co. store, and the Grand Banquet will be served Friday evening.

Wheat Ruling Attacked

TWIN FALLS, IDAHO—A federal regulation setting the percentage of wheat allowed in mixed grain fed to cattle is under attack by the Twin Falls County Farm Bureau, which calls the rule "tyrannical and dictatorial."

FDA

(Continued from page 1)

ticular drug in the feed "in its final dosage form."

Without the appropriate application, the feed mixer is in violation of the law should he mix the drug in the feed. This is true even though he mixes the drug in the feed on the prescription of a veterinarian. Also, a veterinarian who prescribes a drug or any combination of drugs at dosage levels other than those commonly recognized as safe may be doing so illegally.

2. The government "maintains that concentrations and premixes of new drug substances should be shipped only to individuals or firms which have an effective new drug application. . . . We feel that this (improper medication) can be prevented to a great extent by controlling the use of the drug from the time it is manufactured until it is consumed."

The feed mixer using a concentrate as well as a premix, containing a new drug substance, legally is subject to certain new drug and antibiotic regulations and must have an effective application.

The concentrate question was not covered specifically in the conference talk, but subsequent discussions indicated that requirements legally extend to the "final dosage form" of the medicated feed. Some observers said that when safety data and other considerations apply to the finished feed, the requirements extend all the way to the final mixing of such feed, no matter where the mixing takes place. One person commented that "it is the final form of the feed that counts."

The FDA talk at the conference in Kansas City was on the subject "Veterinary Prescription of Drugs for Feeds—Where Do We Stand Today?" The speaker was Dr. LaVerne C. Harold, assistant veterinary medical director of FDA. His talk was one of several in the field of veterinary-feed industry relationships and animal nutrition. The conference was sponsored by the Midwest Feed Manufacturers Assn. and state veterinary medical groups.

(Also see text of Dr. Harold's talk on page 3, and other conference stories on pages 1 and 7.)

Dr. Harold's statements on a veterinarian's prescription of drugs in feeds represented a change from interpretations which many persons had made or understood. Some had thought that if a particular drug and feed were prescribed and if a "bona fide doctor-patient relationship" existed, the new drug requirements on the feed mixing would not apply. However, as outlined above, a new drug substance may not legally be mixed in a feed when the mixer does not have a new drug application covering that particular drug, or does not have an effective Antibiotic Form 10 when such drug is combined with a certifiable antibiotic.

Regarding the concentrate and premix question—it may be noted that this came up previously at the time of an industry-FDA meeting in Washington. (Feedstuffs, Nov. 26). As noted following that meeting, industry has been awaiting some further clarification of questions which arose. Representatives of the American Feed Manufacturers Assn. and Grain & Feed Dealers National Assn. met with FDA officials, and they have been waiting for release of an FDA paper given at the meeting.

However, indications to date are that FDA holds that regulations on use of new drug substances extend to the final mixing, including mixing of concentrates with grain at the local mill or farm or grower level.

Many in industry feel that if first incorporation of a drug into a feed product is checked and meets all labeling and other requirements, that is sufficient and controls need not reach to all levels of mixing.

AFMA reported following the meeting in Washington that there were "indications that FDA may be about ready to embark on a new policy which the feed industry feels could be unwise, unsound and result only in hardships and confusion for all parties concerned.

"Certainly the safety of both animals and humans must be safeguarded. The industry fully appreciates the obligation and responsibility of FDA in this area and is willing to cooperate fully. However, to further subject manufacturers, feed mixers and farmers to stringent and unenforceable regulations, that add little if anything to the basic consideration of safety, would be most unfortunate."

As mentioned before, some feel that local mixers using drug premixes should be subject to FDA requirements but that there is no safety problem in use of conventional concentrates.

In his talk at Kansas City, Dr. Harold again stated the view that, in effect, all medicated feed business is interstate business and is subject to federal controls.

"The idea is sometimes gotten," he said, "that a drug substance may be used without concern provided both the feed mixer and the grower are located in the same state. However, we believe that such a practice would break down our entire drug control system, and there would be no purpose for having it in the first place if anyone could make up his own mind as to how much of a new drug he could use and when he could use it. . . . Since new drug substances are moved in interstate commerce, they must be subject to the federal law and they cannot lose their interstate identity by merely having the grower and the mixer in the same state."

Thus, local mills selling only within their own state and farm mixers and poultry integrators mixing feed for their own birds are, like other feed plants, subject to FDA requirements.

Concluding his comments on the veterinarian and other aspects of his discussion, Dr. Harold said: "FDA has the responsibility for safe use of all drugs and intends to uphold this responsibility. Where neither the shipper nor the feed mixer has an effective new drug application or a proper exemption under the antibiotic regulations covering the finished feed, it may be possible for the government to support seizure of the medicinal substance, seizure of the finished medicated feed, citation of the shipper or citation of the operator of the feed mill."

Following his talk, in response to questions from the audience, Dr. Harold made these comments:

—If a veterinarian wants to use a new combination of drugs, he should ask FDA if it is a new drug combination. If so, he would have to see that there was a new drug application, and if necessary, data would have to be submitted.

—There is no problem in regard to use of cobalt in swine feeds with dosages generally being used.

—A veterinarian may not prescribe use of a new drug in a feed mixed on the farm unless the farmer has an effective NDA. A manufacturer may not legally ship to any person who does not have an effective application for use of the new drug substance in the feed.

—On the status of veterinarian prescription of a new drug as water medication to supplement feed containing an antibiotic, or vice versa—there are water medication regulations as well as feed regulations; the drugs may not be used unless there are clearances for both or there is adequate safety data for the prescribed uses.

—A local feed mixer must have an NDA or antibiotic form 10 if the feed contains a new drug substance, even though he is using a conventional concentrate rather than a drug premix. Control goes down to the final dosage form.

MARKETING THEME—This poster was the theme for the annual marketing meeting of Dr. Salsbury's Laboratories, Charles City, Iowa, when 80 territory managers gathered in Mason City, Iowa. Emphasizing the theme are, from left: H. G. Bos, marketing director; T. W. Freeze, general sales manager; Dr. John G. Salsbury, vice president and general manager, and Dr. J. E. Salsbury, president and founder of the company.

TOP OF THE HOPPER

(Continued from page 2)

the feeder mentioned above also has an electric organ. There may be more to this correlation between organ-playing and feeding than is generally known. Which feed company will be first to become a distributor for Hammond or Wurlitzer? Or figure out a deal to include one with a feed booking contract?

MORE THAN ENOUGH turkey breeder hens being in production in 1961 is almost a certainty, according to Nicholas Turkey News. "The projected number of breeders to be kept should create concern in many areas—and in all segments of this industry."

A FEED MAN who has both his own and contract egg producing operations keeps some very detailed records which may be used to compare results between the two systems. He says that, in his own operations, results are consistently better and total costs are less. With complete management control, he is turning out a better product at lower costs. And he is inclined to move, capital requirements permitting, still more into operations where he has complete responsibility and control.

The situation varies by areas, of course, but some broiler men point to similar situations, and they say that if they are to assume most of the risk, they will continue to move in the direction of complete ownership and direction of production operations.

BROILER BUSINESS reports that control of the major portion of production in northwest Arkansas is in the hands of about seven integrators. A good broiler year in 1960 has sparked widespread expansion, the publication reports.

IN ADDITION TO THOSE happy with the egg business, some persons in the broiler business are reported to have been rather pleased in recent weeks, even when prices declined. Among these are said to be some of the broiler integrators in sections of the South. Some completely integrated operators, it is claimed, have been able to produce broilers for a cost of 12½¢ lb. Then, even when prices are not very high, they have a favorable growing return when they transfer the birds to their own processing businesses.

The FEED MARKET

PRICE QUOTATIONS, MARKET TRENDS
OF PRINCIPAL INGREDIENTS

NOTE: Quotations on feed ingredients shown in these and adjoining columns are wholesale prices, per ton, bulk, for prompt delivery, unless otherwise noted. They are the latest quotations available from Feedstuffs correspondents and are not necessarily those in effect on date of publication. The prices represent fair average trading values and do not necessarily represent extreme low or high levels at which individual sales might have occurred. A descriptive summary of supply and demand factors prevalent in the feed market appears on page 2.

A AND D FEEDING OIL

Boston: Demand and supply steady; 400 D, 3,000 A 19⅛¢ lb.; 300 D, 3,000 A 19¢; 300 D, 2,250 A 17⅛¢; 300 D, 1,500 A 16¢; 300 D, 750 A 14¢; 75 D, 750 A 13⅛¢.

Chicago: Demand fair; trend steady; supply ample; straight A feeding oil, with 10,000 units vitamin A per gram, 7@7⅛¢ a million units of vitamin A, l.c.l., packed in 55 gal. drums, f.o.b. Chicago, drums included.

Minneapolis: Demand fair; supply ample; 10,000 A 21¢ lb.; 300 D, 2,250 A 17⅛¢ lb.; 300 D, 1,500 A 16¢ lb.; 300 D, 750 A 15⅛¢ lb.

Denver: Demand slow; trend steady; supply ample; 21¢ lb.

ALFALFA MEAL

Memphis: Demand fair; trend steady; supply ample; dehydrated, 17% protein, guaranteed 100,000 units vitamin A $52.

Philadelphia: Demand and supply fair; 17% dehydrated $63.50.

Los Angeles: Demand steady; trend firm; supply limited; dehydrated meal, 17% protein, 100,000 A $51.50@52, nominal; dehydrated pellet meal, 17% protein, 100,000 A $53@54, nominal; suncured meal, 15% protein $45@46; suncured crumbles, 15% protein $47@48.

Omaha: Demand slow; trend steady; supply ample; 17% dehydrated, 100,000 A units, bulk pellets $48; sacked meal $50, Omaha basis.

Ft. Worth: Demand fair; supply sufficient; sacked: dehydrated, 17%, 100,000 A $57.10, truck or rail; suncured: 13% ¾-in. grind No. 1 $48, truck; 15% fine ground, dry $50, with 2% fat added $52, rail or truck.

Cincinnati: Demand poor; trend steady; supply adequate; 17% dehydrated, 100,000 vitamin A $55@56.

Seattle: Demand fair; trend firm; supply good; 15% protein suncured $51, 150,000 A unit dehydrated $72, both delivered truck loads, sacked.

Kansas City: Demand fair; trend steady; supply ample; 17% dehydrated alfalfa, 100,000 A on arrival, pellets $46@48, reground pellets $47@49; 18% dehydrated alfalfa, 150,000 A on arrival, pellets $48@51, reground pellets $49@52; 20% dehydrated alfalfa, demand improved, supply adequate, 13% pellets $35@37; No. 1 ¾-in. $40, sacked.

Boston: Demand steady; supply good; 17% dehydrated $63; suncured 13%, sacked $46.60.

Portland: Demand fair; trend steady; supply adequate; $47@72, sacked.

Chicago: Demand fair; trend firm; supply moderate; dehydrated, 17% protein, 100,000 units vitamin A $49.

St. Louis: Demand fair; trend firm; supply limited; suncured, 13% fine, sacked $48; dehydrated, 17%, 100,000 A pellets, demand good, supply ample, trend higher, bulk $48.50.

Buffalo: Demand poor; trend steady; supply fair, $62.60, sacked, Boston.

Denver: Demand fair; trend steady; supply good; $47.

ANIMAL FAT (STABILIZED)

Ft. Worth: Demand good; supply sufficient; prime tallow, tank cars 5⅝¢ lb.; drums 7⅛¢ lb., f.o.b. north Texas packing plants, with returnable drums.

Ogden: Supply good; $5.75 cwt.

San Francisco: Demand fair; supply ample; bleachable fancy 6⅛¢ lb.; yellow grease 4⅝¢ lb.

St. Paul: Demand good; supply ample; bleachable fancy steady at 5⅝¢ lb.

Kansas City: Demand slow; trend easy; supply ample; stabilized prime tallow 5⅛¢ lb.

Louisville: Demand fair; trend steady; supply good; white tallow 6¢ lb., bleachable white 5⅝¢ lb., yellow grease 5⅛¢ lb., all in tank car lots.

Boston: Demand and supply steady; tallow 6¢ lb.; yellow grease 5¢ lb.

Chicago: Demand good; trend steady; supply fair; tank truck or carlots, bleachable fancy tallow $5.75 cwt., yellow grease $5 cwt.

Salisbury, Md.: Demand very good; supply ample; 5⅝¢ lb., f.o.b.

BARLEY FEED

Philadelphia: Demand slow; supply fair; $41.50.

Los Angeles: Demand slow; trend unchanged; supply adequate; standard rolled $3 cwt., standard ground $3 cwt., both sacked.

Ogden: Supply ample; rolled $45@46; whole $40@41.

Milwaukee: Demand limited; trend unchanged; supply adequate; feed barley 81¢ bu., bulk; barley feed $33.50, sacked; ground feed barley $43 in cwt. sacks.

San Francisco: Demand fair; supply ample; rolled $58, ground $57.

Seattle: Demand and supply good; trend firm; $46.50, truck lots.

Boston: Demand slow; supply light; $46, sacked.

Chicago: Demand fair; trend upward; supply moderate; $34, sacked.

Portland: Demand fair; trend firm; supply adequate; $44.50.

Baltimore: Demand fair; trend higher; supply moderate; $44.50, sacked.

Denver: Demand and supply fair; trend steady; $2.10 bulk, $2.30 sacked.

BENTONITE (SODIUM)

Cincinnati: Demand steady; supply adequate; f.o.b. Cincinnati, minimum 30 ton carlots: 30 granular $31.50, less than car lots $40; 200 mesh fine $31.50, less than car lots $40.

Chicago: Demand fair; supply ample; trend steady; f.o.b. Wyoming and South Dakota shipping points: 200 mesh $14 and net $13.75; fine granular (80 to 100 mesh) $14.25 and net $14; granular, 30 mesh $16.50 and net $16.25.

Denver: Demand fair; trend steady; supply good; $24.50.

BLOOD FLOUR

Louisville: Demand fair; trend steady; supply good; $30@35, sacked.

BLOOD MEAL

Los Angeles: Demand slow; trend steady; supply moderate; $5.50 a unit ammonia, sacked.

Ogden: Supply good; $32.50.

Omaha: Demand good; trend strong; supply fair; 80% $55, sacked, Omaha.

San Francisco: Demand and supply fair; $4.75 a unit of ammonia, sacked.

Louisville: Demand good; trend steady; supply ample; $30@35, sacked.

Portland: Demand fair; trend fully steady; supply ample; $95@100, sacked.

Chicago: Demand slow; trend steady; supply fair; 80% protein $110, sacked.

BONE MEAL (STEAMED)

Ft. Worth: Demand good; supply sufficient; $100, sacked, f.o.b. Ft. Worth, local manufacture.

Cincinnati: Demand fair; trend steady; supply ample; $90, sacked, Cincinnati.

Los Angeles: Demand fair; trend steady; supply ample; imported $80.75, 20 ton lots, sacked.

San Francisco: Demand good; supply ample; $75, sacked.

Louisville: Demand fair; trend strong; supply light; $90@95, sacked.

Seattle: Demand fair; trend steady; supply good; $92, sacked, f.o.b. car Seattle.

Boston: Demand and supply steady; $100.

Chicago: Demand quiet; trend firm; supply fair; $90, sacked.

Buffalo: Demand fair; trend steady; supply light; $95, sacked.

Denver: Demand fair; trend steady; supply ample; $112.50.

BREWERS DRIED GRAINS

Philadelphia: Demand and supply fair; $61.50.

Milwaukee: Demand good; trend strong; supply limited; $50 bulk, $53 sacked.

Cincinnati: Demand poor; trend steady; supply adequate; $55.

Los Angeles: Demand and trend steady; supply adequate; $51.

Ft. Worth: Demand moderate; supply scarce; 26% protein $62.90, sacked, December.

San Francisco: Demand fair; supply ample; $51, sacked.

Louisville: Demand good; trend steady; supply normal; $59, sacked.

Boston: Demand active; supply light; $61.10.

Chicago: Demand good; trend firm; supply fair; 26% protein $48.

St. Louis: Demand good; trend higher; supply tight; $52.

Buffalo: Demand fair; trend steady to higher; supply poor; $62.25, Boston.

BREWERS DRIED YEAST

Los Angeles: Demand good; trend unchanged; supply limited; 10¢ lb., 5 ton lots; 11¢ lb., 1 ton lots; 12¢ lb., less than ton lots; all sacked.

Omaha: Demand fair; trend improving; supply plentiful; 10¢ lb.

San Francisco: Demand fair; supply good; 10¢ lb., sacked.

Seattle: Demand slow; trend steady; supply ample; $12 cwt., sacked.

Boston: Demand and supply steady; 13¢ lb.

Louisville: Demand good; trend steady; supply normal; 10@10½¢ lb., sacked.

Portland: Demand fair; supply ample; trend fully steady; 11@12¢ lb.

Cincinnati: Carlots 11¢ lb.; 5 ton lots 11¢ lb.; ton lots 11½¢ lb., all sacked.

Chicago: Demand fair; trend steady; supply ample; 9½@10¢ lb., carlots, sacked; 9⅝@12½¢ lb., l.c.l.

Milwaukee: Demand fair; trend steady; supply ample; 10⅛@12½¢ lb., ton lots, sacked.

St. Louis: Demand fair; trend firm; supply ample; 9⅝@10¢ lb., carlots, sacked; 10½¢ lb., ton lots; 11½¢ lb., less than ton lots.

Pittsburgh: Carlots 10¢ lb.; 5 ton lots 11¢ lb.; ton lots 11⅝¢ lb., all sacked.

New Orleans: Carlots 10¢ lb.; 5 ton lots 11¢ lb.; ton lots 11⅝¢ lb., all sacked.

New York: Carlots 9⅝¢ lb.; 10 ton lots 10¢ lb.; 5 ton lots 10½¢ lb.; ton lots 11¢ lb., all sacked, f.o.b. New Jersey.

Buffalo: Demand fair; supply ample; trend steady; $9 cwt.

Denver: Demand fair; trend steady; supply ample; 9¢ lb.

BUTTERMILK (CONDENSED)

Los Angeles: Demand slow; trend unchanged; supply adequate; 5½¢ lb., 100 lb. lots; 4⅝¢ lb., 500 lb. lots; both in barrels.

Philadelphia: Demand slow; supply fair; $61.50.

Ogden: Supply good; $4.40 cwt., drum.

San Francisco: Demand fair; supply good; $5 cwt., drums.

Louisville: Demand dull; trend steady; supply light; $4.25 cwt. in paper drums.

Boston: Demand and supply steady; 4¾¢ lb.

Chicago: Demand slow; trend steady; supply fair; in 500 lb. barrels $3.25@3.50 cwt.

CALCITE CRYSTALS AND FLOUR

(All prices net, sacked, including freight)

New York: Crystals $16.38, flour $10.38.

Buffalo: Crystals $17.11, flour $11.11.

Toledo: Crystals $18.96, flour $12.96.

Boston: Crystals $17.63, flour $11.63.

Lime Crest, N.J.: Crystals $11.50, flour $5.50.

CALCIUM CARBONATE

Los Angeles: Demand fair; trend unchanged; supply adequate; flour $10.15, 20 ton cars; meal $11.15, 20 ton cars; both sacked.

Cincinnati: Demand fair; trend steady; supply adequate; $7@7.50 cwt.

Seattle: Demand and trend steady; supply good; $14, ex-warehouse, sacked.

Chicago: Demand fair; trend steady; supply ample; fine grind, plain, 100 lb. bags $9.54; bulk, in hopper cars $7.54; bulk, in boxcars $8.04; granular grind $1 premium.

Minneapolis: Fine grind, 50 lb. bags $12.75; 100 lb. bags $12; bulk, boxcar $10.50; bulk, hopper $10; coarse grind $1 premium, delivered Minneapolis.

CHARCOAL

Los Angeles: Demand slow; trend unchanged; supply ample; hardwood poultry: $156, less than ton lots; $144.40, ton lots; both sacked.

San Francisco: Demand steady; supply ample; $141, sacked.

Boston: Demand slow; supply light; granular No. 6 $110.

Chicago: Demand fair; trend firm; supply fair; 50 lb. multiwalls $110.

COCONUT OIL MEAL

Los Angeles: Demand slow; trend unchanged; supply ample; copra cake $63.

San Francisco: Demand fair; supply ample; solvent $52, expeller $69.

Seattle: Demand fair; trend steady; supply ample; solvent type $68, sacked, f.o.b. car Seattle.

Portland: Demand slow; trend firm; supply adequate; $63.20.

COD LIVER OIL (FORTIFIED)

Boston: Demand and supply steady; 200 D, 3,000 A 20¢ lb.; 600 D, 2,250 A 18⅜¢; 300 D, 2,250 A 18¢; 600 D, 1,500 A 17¢; 300 D, 1,500 A 16½¢.

CONDENSED FISH SOLUBLES

Los Angeles: Demand and trend steady; supply adequate; 2¢ lb.

Boston: Demand quiet; supply ample; $37.50@40.

Denver: Demand slow; trend steady; supply ample; 3¢ lb., West Coast.

CORN OIL MEAL

Cincinnati: Demand fair; trend steady; supply adequate; $47.

Louisville: Demand dull; trend strong; supply light; $55.50, sacked.

Seattle: Demand good; trend steady; supply ample; $52 carlots.

CORN GLUTEN FEED AND MEAL

(All quotations for all cities are bulk basis, sacked basis $5 more)

Minneapolis: Feed $47.60, meal $62.60.
Atlanta: Feed $51, meal $66.
Birmingham: Feed $49.60, meal $64.60.
Boston: Feed $52.50, meal $67.50.
Chicago: Feed $41, meal $56.
Cleveland: Feed $48.90, meal $63.90.
Denver: Feed $51.20, meal $66.20.
Ft. Worth: Feed $49.70, meal $64.70.
Indianapolis: Feed $46.20, meal $61.20.
Kansas City: Feed $41, meal $56.
Louisville: Feed $48.60, meal $62.60.
New Orleans: Feed $50.90, meal $65.90.
New York: Feed $52.10, meal $67.10.
Norfolk: Feed $51.50, meal $66.50.
Philadelphia: Feed $51.70, meal $66.70.
St. Louis: Feed $41, meal $56.

COTTONSEED OIL MEAL

Wichita: Demand fair; supply ample; 41% old process $67, sacked.

Cincinnati: Demand poor; trend steady; supply adequate; $56.60 in 40 ton carloads.

Omaha: Demand slow; trend steady; supply ample; 41% solvent $57.20, delivered Omaha.

Philadelphia: Demand slow; supply fair; $65.

Memphis: Demand fair; trend steady; supply ample; prime 41% protein, old process $52; new process, 41% solvent $49.

Los Angeles: Demand slow; trend steady; supply ample; $54.

Ogden: Supply good; 41% $61@62.

Ft. Worth: Demand good for old process, slow for solvent; supply sufficient; 41% old process $61, f.o.b. mills Ft. Worth; carlots, solvent 2% fat added $56.50, December, delivered Ft. Worth; pellets $2 additional, hulls $19.

San Francisco: Demand fair; supply ample; 41% $57; 44% $58.

Seattle: Demand fair; trend steady; supply ample; $66, f.o.b. car Seattle.

Louisville: Demand fair; trend strong; supply good; old process $62.10, new process $60.10, both sacked.

Kansas City: Demand slow; trend steady; supply ample; 41% old process $52@52.50; solvent process $48.50@49, Memphis.

Boston: Demand slow; supply ample; $69.

Portland: Demand fair; trend steady; supply adequate; $61.20.

Chicago: Demand and supply fair; trend firm; Memphis basis, hydraulic $53.

St. Louis: Demand fair; trend higher; supply ample; solvent $54.

Buffalo: Demand and supply fair; trend steady to lower; $72.50, sacked, Boston.

Denver: Demand light; trend steady; supply ample; $58.

CURACAO PHOSPHATE

New York: Minimum 14% phosphorus $46.50 sacked, $42.50 bulk, f.o.b. New Orleans, Jacksonville and Philadelphia.

D ACTIVATED ANIMAL STEROL (POWDERED)

Cincinnati: Demand fair; trend steady; supply ample; 1,500 ICU 11@12¢ lb.; 3,000 ICU 10¢ lb., warehouse.

Kansas City: Demand fair; trend steady; supply ample; 1,500 ICU 9⅝¢ lb.; 3,000 ICU 11¢ lb.

D ACTIVATED PLANT-STEROL (POWDERED)

Chicago: Demand fair; supply ample; 4,000,000 U.S.P. units per lb., 18¢ lb. in ton lots, less than ton lots 17¢ lb.; 12,000,000 units per lb., 5 tons to a carload 28¢ lb., ton lots and less 30¢ lb.

DEFLUORINATED PHOSPHATE

Coronet, Fla.: Minimum phosphorus 18%, minimum calcium 31%, maximum calcium 34%, maximum fluorine .13%; guaranteed uniform analysis; carload $61.25, sacked, 100 lb. multiwall bags, bulk $58.25, truck load $62, sacked, in 100 lb. multiwall bags, bulk $57, f.o.b. Coronet, Fla.

Tupelo, Miss.: Minimum phosphorus 14%, minimum calcium 28%, maximum fluorine .14% $52, f.o.b. Tupelo in 100 lb. multiwall bags, $54.07 bulk.

Wales, Tenn.: Minimum phosphorus 18%, minimum calcium 33%, maximum 36%, maximum fluorine .18% $56 (or $3.07 per unit of P), f.o.b. Wales in 100 lb. multiwall bags, $3 less in bulk.

Butte, Mont.: Minimum phosphorus 18%, minimum calcium 32%, maximum calcium 36%, maximum fluorine .18% $81 (or $4.50 per unit of P), f.o.b. Butte, 100 lb. multiwall bags; bulk $78; truck lots of less than 10 tons $10 more, bagged or bulk.

Portland: Demand fair; supply adequate; trend unchanged; $93.50@95 for product carrying a minimum of 18% phosphorus, 31.5% calcium and a maximum of 0.1% fluorine; $93@93.50 dock for a minimum of 10 ton lots.

Houston: Minimum phosphorus 19%, minimum calcium 32%, maximum calcium 35%, maximum fluorine .19% $69.35 net ton, f.o.b. Houston, 100 lb. multiwall bags; $66.35 bulk ($3.65 per unit of P).

Cincinnati: 18% phosphorus $74.30 in carloads, $54.30 in ton loads; 14% phosphorus $63.80 in carloads, $72.50 in ton loads, f.o.b. Cincinnati.

DICALCIUM PHOSPHATE

Trenton, Mich.: 18⅛% P $33, bulk, boxcar/hopper car; $36, bagged, in carloads or truck loads; $36 bagged, in less than carload lots; 21% P, $94.05, bulk, boxcar/hopper car; $97.65, bagged, in carloads or truck loads; $107.65, bagged, less than carload; all prices f.o.b. Trenton, freight equalized with nearest producing point.

Chicago: Bulk 18.5% phosphorus, carlots or trucks $83; 20,000 lb. or more $86 net ton in 100 lb. papers; less than 20,000 lb. $96, basis Chicago Heights, Ill., or Nashville, Tenn.; 21% phosphorus, carlots or trucks, bulk $94.65; 20,000 lb. or more, per net ton in 100 lb. papers, $97.65; less than 20,000 lb., $107.65, basis Chicago Heights, Ill., or Nashville, Tenn.

Bonnie, Fla.: Minimum phosphorus 18⅛%, granular, $81 (or $4.38 unit of P), freight equalized from nearest producing point, carload basis; bulk carloads $3 less; in truck loads of less than 10 tons, $10 more. Western slope prices, for delivery at established railroad stations and by truck at regular feed mixing plants: California, Arizona, Nevada and Utah, $99.90; Washington, Oregon, Montana and Idaho, $107.14; bulk carloads $3 less; truck loads less than 10 tons, $10 more.

Columbia, Tenn.: Minimum phosphorus 18.5%, minimum calcium 24% $86, f.o.b. Columbia, in 100 lb. multiwall bags; freight equalized with nearest producing point, carload basis; bulk $3 ton less.

Texas City, Texas: Minimum phosphorus 18.5%, minimum calcium 20%, maximum calcium 23%, maximum fluorine .12%; carload and truck load $75.50, sacked in 100 lb. multiwall bags, bulk $72.50, f.o.b. Texas City.

Cincinnati: 18⅛% phosphorus $88.80, bagged, in carloads; $98.70, bagged, in ton lots, f.o.b. Cincinnati; $81, f.o.b. producing points.

Denver: Demand good; trend steady; supply ample; $88.50, delivered, carload, Denver.

DISTILLERS DRIED GRAINS

Cincinnati: Demand fair; trend steady; supply adequate; $58@59.

Philadelphia: Demand slow; supply light; $68.75.

San Francisco: Demand fair; supply ample; solubles $79, sacked.

Louisville: Demand good; trend easy to firm; supply ample; bourbon grains: light $58, dark $59, solubles $72, all sacked.

Seattle: Demand fair; trend firm; none available; $69, sacked, delivered truck lots.

Boston: Demand active; supply short; dark $68.50.

Buffalo: Demand good; trend steady to higher; supply poor; $68, Boston.

DRIED BEET PULP

Milwaukee: Demand limited; trend slow;

supply adequate; plain $50, molasses $50.50, both Chicago basis.
Ogden: Supply ample; $39@45.
Los Angeles: Demand good; trend steady; supply moderate; $49.90.
Ft. Worth: Demand slow; supply sufficient; plain $62.50, sacked, 50 lb. bags, January, February, March.
San Francisco: Demand good; supply fair; $44.80.
Seattle: Demand good; trend steady; supply ample; $49, delivered carlots, sacked.
Boston: Demand slow; supply improving; $56.50, sacked.
Portland: Demand good; trend steady; supply adequate; $48.60, sacked.
Denver: Demand fair; trend steady; supply good; $62.50.
Buffalo: Demand and supply fair; trend steady to higher; $57.10, sacked, Boston.

DRIED BUTTERMILK

Los Angeles: Demand fair; trend unchanged; supply ample; 13¾@14¢ lb., sacked.
Ogden: Supply good; $17.25 cwt.
Milwaukee: Demand limited; supply limited; trend firm; 10¢ lb.
San Francisco: Demand fair; supply ample; 13¾¢ lb., sacked.
Boston: Demand light; supply short; 14¢ lb.
Louisville: Demand fair; trend steady; supply ample; 13@13½¢ lb., sacked.
Chicago: Demand quiet; trend firm; supply fair; medium acid $11.50@12 cwt., sweet cream $11.50@12 cwt., both sacked.
Buffalo: Demand fair; trend steady; supply limited; $12.45 cwt.

DRIED CITRUS PULP

Los Angeles: No quotations available.
San Francisco: Demand and supply fair; meal $45, sacked.
Boston: Demand fair; supply tight; new crop $47.50, sacked, f.o.b. Florida.
Buffalo: Too scarce to quote.

DRIED SKIM MILK

Cincinnati: Demand fair; trend steady; supply adequate; 12@13¢ lb., sacked.
Milwaukee: Demand and supply limited; trend firm; 11¾¢ lb.
Philadelphia: Demand slow; supply fair; $13 cwt.
Ogden: Supply average; $15.15 cwt., sacked.
Los Angeles: Demand slow; trend unchanged; supply adequate; 15¢ lb., less than ton lots; 14¾¢ lb., ton lots; both sacked.
Omaha: Demand good; trend strong; supply short; 12¢ lb.
San Francisco: Demand and supply fair; 14½¢ lb., sacked.
Louisville: Demand fair; trend steady; supply normal; 12@13¢ lb., sacked.
Boston: Demand active; supply scarce; 13¢ lb., nominal.
Chicago: Demand quiet; trend firm; supply fair; $11.25@11.50 cwt., sacked.
Buffalo: Demand fair; trend steady; supply ample; $13.35 cwt.

DRIED WHEY

Cincinnati: Demand fair; trend steady; supply adequate; $5.75 cwt., sacked.
Ft. Worth: Demand fair; supply adequate; carlots, standard $5.25 cwt., sacked, delivered Ft. Worth; ton lots $5.50 cwt., f.o.b. warehouse Ft. Worth.
Ogden: Supply good; $6.90 cwt., sacked.
Philadelphia: Demand slow; supply fair; $6.25 cwt.
Los Angeles: Demand fair; trend unchanged; supply adequate; $5.18 cwt., carloads; $5.35 cwt., l.c.l.; both sacked.
Omaha: Demand good; trend improved; supply plentiful; $5.50 cwt.
San Francisco: Demand steady; supply good; $5.25 cwt., sacked.
Portland: Demand fair; supply enough; trend unchanged; $5.60 cwt., sacked.
Boston: Demand and supply good; 5¼@5¾¢ lb.
Louisville: Demand fair; trend steady; supply light; 6@6¼¢ lb., sacked.
Minneapolis: Price remains unchanged at $5.50 cwt.
Seattle: Demand steady; trend easy; supply good; $5.35 cwt., ex-warehouse, l.c.l.
Chicago: Demand fair; trend steady; supply ample; $4.35 cwt., sacked.
Kansas City: Demand fair; trend steady; supply adequate; regular or partially delactosed $5.25 cwt., sacked.
Denver: Demand fair; trend steady; supply ample; $5.25 cwt., delivered truck.

FEATHER MEAL (HYDROLYZED)

Ft. Worth: Demand slow; supply sufficient; 85% protein $61@63 bulk, $63.50@65.50 sacked, delivered Ft. Worth.
Los Angeles: Demand and trend steady; supply adequate; 90¢ a unit of protein, sacked.
Boston: Demand fair; supply ample; 60%
Salisbury, Md.: Demand very good; supply ample; $60, f.o.b.

FISH MEAL

Ogden: Supply ample; $1.05 a unit, f.o.b. Coast; 65% $105@108.
Los Angeles: Demand slow; trend steady; supply adequate; local production, 60% protein $1.46 a unit, sacked.
Ft. Worth: Demand fair; supply sufficient; sacked: 65% protein Peruvian $92.50, December; 60% protein menhaden $99, delivered Ft. Worth.
Milwaukee: Demand limited; supply adequate; trend slow; 60% $110, sacked, Chicago basis.
San Francisco: Demand slow; supply ample; $1.40 a unit of protein.
Omaha: Demand good; trend improved; supply plentiful; 60% menhaden $105, f.o.b. Omaha.
Cincinnati: Demand fair; trend steady; supply adequate; $108.60.
Boston: Demand slow; supply ample; $65, menhaden $90@92.
Louisville: Demand dull; trend steady; supply light; $100@110, sacked.
Seattle: Demand and supply good; trend firm; $1.45 a unit protein, f.o.b. truck Vancouver, B.C. (Canadian production).
Portland: Demand fair; supply adequate; trend unchanged; $1.50 a protein unit, sacked.
Chicago: Demand poor; supply ample; trend easier; sacked: menhaden, East Coast $85@90, Gulf $86@90; menhaden scrap, East Coast $84@86, Gulf $82@86; Canadian herring meal $1.30 a unit of protein.
Minneapolis: Demand fair; supply ample; West Coast 60% blended steady at $113, sacked, delivered; Canadian herring $1.30 a unit, West Coast, subject to production.
Buffalo: Demand light; trend steady; supply ample; 60% protein menhaden $100 bulk, $105 sacked.
Denver: Demand good; trend steady; supply ample; $1.45 a protein unit, Vancouver.

HAY

Ft. Worth: Demand fair for alfalfa, practically nil for others; supply sufficient; carlots, baled, No. 1 alfalfa $42@44, No. 2 $40@42; No. 3 prairie, nominal $30@32; No. 2 Johnson, nominal $38@30, delivered Texas common points.
Ogden: Supply ample; $25 ton in the barn.
Los Angeles: Demand slow; trend firm; supply tighter; U.S. No. 1 $33@35; U.S. No. 2 leafy $29.50@31; U.S. No. 2 green $31@32; U.S. No. 2 $27@28.
Philadelphia: Demand slow; supply light; $25.50.
Wichita: Demand good; supply sufficient; prairie $22@25, alfalfa $28@30, baled.
Cincinnati: Demand slow; trend steady; supply adequate; second cutting alfalfa $35; No. 1 timothy $25; No. 1 timothy and clover, mixed $36; No. 1 red clover $30; straw $18.
Seattle: Demand good; trend firm; supply fair; alfalfa, U.S. No. 2 green $37, baled, delivered truck lots.
Boston: Demand and supply steady; No. 2 timothy $39@42.
Louisville: Demand slow; trend steady; supply good; local hay, all varieties: No. 1 $28@30, No. 2 $26@28; straw $18@20.
Portland: Demand fair; supply ample; trend unchanged; alfalfa, No. 2 green $32@34 baled, Portland-Seattle.

HOMINY FEED

Milwaukee: Demand fair; trend higher; supply limited; $41 bulk, $45 sacked, both Chicago basis.
Memphis: Demand poor; trend steady; supply ample; white $40.70, yellow $40.70.
Cincinnati: Demand poor; trend steady to higher; supply fair; $40.50.
Seattle: Demand good; trend firm; supply limited; $51, sacked, delivered carlots.
Kansas City: Demand good; trend strong; supply tight; white or yellow $34.50@35.
Louisville: Demand dull; trend steady; supply light; $45, sacked.
Boston: Demand fair; supply adequate; $50.
Chicago: Demand good; trend higher; supply fair; $40.
Buffalo: Demand fair; trend steady to higher; supply poor; $51, Boston.
St. Louis: Demand good; trend firm; supply adequate; yellow $39.

LINSEED OIL MEAL

Ft. Worth: Demand slow; supply sufficient; 34% protein, solvent $69, December.
Cincinnati: Demand poor; trend steady; supply adequate; new process $53.50, old process $59, Minneapolis.
Wichita: Demand fair; supply ample; 34% $75, sacked.
Philadelphia: Demand and supply fair; 34% $71.
Los Angeles: Demand slow; trend unchanged; supply adequate; local production, 31% protein $71.
Milwaukee: Demand limited; trend unchanged; supply adequate; expeller $68.50 sacked, solvent $63.50 sacked, both Chicago basis.
Omaha: Demand fair; trend steady; supply ample; 34% solvent $57.90; 32% old process $64.40, Omaha basis.
San Francisco: Demand fair; supply ample; $70.
Kansas City: Demand slow; trend weaker; supply ample; solvent process $51.50@52, old process $58@58.50, Minneapolis.
Boston: Demand slow; supply light; $70.20.
Louisville: Demand slow; trend easy; supply light; old process $76.50, solvent $71.50, both sacked.
Seattle: Demand fair; trend steady; supply good; 34% protein (Montana) $85, sacked, delivered carloads.
Portland: Demand slow; supply ample; trend unchanged; $84.50, sacked.
Chicago: Demand fair; trend higher; supply light; Minneapolis basis: solvent $53.50, expeller $58.50@59.
Denver: Demand fair; trend steady; supply ample; $70.50, sacked.

LIVER AND GLANDULAR MEAL

Omaha: Demand and trend fair; supply ample; 65% $175, sacked, Omaha.

MALT SPROUTS

Milwaukee: Demand good; trend strong; supply firm; $40, bulk; $46.50, uneven bags; $48, even bags.
Cincinnati: Demand fair; trend steady; supply adequate; No. 1 $44.
Boston: Demand and supply limited; $48, nominal.
Chicago: Demand very good; trend higher; supply light; No. 1 uneven weight bags $46.50, sacked.

MEAT AND BONE MEAL

Wichita: Demand heavy; supply about offsets demand; 50% $80, sacked, f.o.b. plant.
Ogden: Supply ample; 50% protein $75, sacked.
Los Angeles: Demand good; trend firm; supply limited; 50% protein $1.40 a unit.
Omaha: Demand good; trend strong; supply fair; $75.
Ft. Worth: Demand good; supply fair; meat and bone, 50% $67.50 bulk, $70.50 sacked, f.o.b. Ft. Worth.
Cincinnati: Demand excellent; trend stronger; supply fair; 50% meat and bone scraps $71, Cincinnati.
San Francisco: Demand fair; supply ample; $1.40 a unit of protein.
St. Paul: Demand good; supplies ample; price about $3 stronger than week ago at $76@80.
Kansas City: Demand good; trend firm; supply tight; 50% $72.50.
Seattle: Demand good; trend steady; supply ample; $1.50 a unit protein, ex-processing plant, sacked.
Portland: Demand good; trend higher; supply adequate; $75, sacked.
Boston: Demand and supply steady; $1 a protein unit; converted 50% $62.50.
Louisville: Demand fair; trend steady; supply good; $80@85, sacked.
Chicago: Demand improved; trend higher; supply ample; 50% protein $75, sacked.
St. Louis: Demand good; trend firm; supply limited; $76.50.
Buffalo: Demand good; trend firm to strong; supply light; 50% meat scraps $75 bulk, $80 sacked.
Denver: Demand good; trend steady; supply ample; $61.50.

MILLFEED

Minneapolis: Demand good; supply adequate; prices still moving upward; bran up $1.50 from last week to $42, sacked; middlings up $2.50@3 to $42@42.50, sacked; red dog up $6@$11 to $43.50@44, sacked.
Kansas City: Demand good; trend strong; supply tight; sacked, shorts $42.50@43, bran $42.50@43; bulk, shorts $39.50@40, bran $39@39.50, middlings $39.50@40.
Wichita: Demand heavy for nearby; supply adequate; basis Kansas City, Dec. 12: bran $41.25@41.75, shorts $41.25@41.75, sacked; bran advanced $5.50 and shorts $6.25, compared with the preceding week.
Ft. Worth: Demand excellent; offerings limited for immediate shipment; bran, bulk $46.50, burlaps $51; gray shorts, bulk $48, burlaps $51.50; bulk middlings $48, delivered Texas common points: bulk bran, shorts and middlings $5 higher; sacked bran $6 higher and sacked shorts $6.50 higher.
Chicago: Demand very good; trend much higher; supply light; standard bran $43.50, standard middlings $44.50, red dog $45.50.
St. Louis: Demand good; trend firm; supply limited; sacked, bran $43, shorts $43; bulk, bran $43.50, middlings $44.50.
Omaha: Demand good; trend strong; supply tight; sacked bran $43; sacked gray shorts $43; bulk standard midds. $40.50, all Omaha basis.
Cincinnati: Demand fair; trend higher; supply adequate; bran $45@51, middlings $48.
Boston: Demand active; supply tight; bran $54.10, middlings $54.60.
Buffalo: Prices up, manufacturers' business is good and inventories light because of cheap corn; higher levels have enticed some substitution of corn and oats but not enough to depress millfeeds; shipping positions tight; demand for pellets has propped standard midds. but market could turn after first of year when mixers turn more heavily to dairy and poultry mixes; sacked differential on bran and middlings steady at $5.50; bran, middlings and red dog ended $3.50 higher; quotations Dec. 14: bulk bran $45@46.50, sacked $50.50@52; bulk middlings $45@46.50, sacked $50.50@52; bulk red dog $45@49.50, sacked $50.50@54.50.
Philadelphia: Demand and supply fair; trend unsettled; bran $50, standard midds. $50, red dog $51.50.
Memphis: Demand fair; trend steady to lower; supply ample; wheat bran $46.30, gray shorts $46.30, standard midds. $45.80.
Louisville: Demand good; trend strong; supply normal; bran $52.80, up $7; mixed feed $53.30, up $7.25; shorts $54.30, up $7.75; all sacked.
Seattle: Demand good; trend firm; supply limited; $38, delivered common transit points, carlots.
Portland: Demand fair; trend higher; supply tight; $39@40.
Denver: Demand fair; trend steady; supply ample; shorts $46.75, bran $46.75, millrun $46.75.
Ogden: Supply ample; bull market trend; to Utah; red bran and millrun $39, middlings $44.
Los Angeles: Standard millrun $48, good demand, firmer trend, light supplies; red bran $56.50@57.50, very slow demand, very much stronger, adequate supplies.
San Francisco: Demand good; supply fair; millfeed $47, red bran $48.

MINERAL FEED

Ft. Worth: Demand fair; supply adequate; all-purpose granules $90, block $70; mineral phosphorus 5% granules $106, block $113; cattle-sheep mineral 7% phosphorus granules $100, block $107; hog mineral phosphorus 3½% granules $87, phosphorus 2% $77 (all in 50 lb. paper bags).
Ogden: Supply good; $113 ton in 50 lb. blocks; $103 ton, granular, 50 lb. bags.
Wichita: Demand heavy; supply sufficient; all-purpose with iodine, 50 lb. blocks $97.50, 100 lb. bags $92.50, f.o.b. plant.
San Francisco: Demand steady; supply good; all-purpose with iodine $70, sacked.
Seattle: Demand fair; trend steady; supply good; mixer mineral $48, all-purpose mineral $85, both ex-warehouse, sacked.
Portland: Demand fair; supply ample; trend unchanged; $40@45.
Sioux City: 50 lb. mineral blocks 8.2% phosphorus $92; 7.5% phenothiazine sheep mineral blocks $4 each.

MOLASSES

Milwaukee: Demand fair; trend unchanged; supply adequate; blackstrap 13¢ gal., f.o.b. New Orleans.
Ft. Worth: Demand good; supply sufficient; blackstrap 13½¢ gal., f.o.b. Houston; delivered Ft. Worth truck $29.78, seller's market price on date of shipment.
Cincinnati: Demand fair; trend steady; supply adequate; 13¢ gal., New Orleans.
Memphis: Demand fair; trend steady; supply ample; blackstrap 13¢ gal., tank car, f.o.b. New Orleans.
Los Angeles: Demand good; trend firm; supply adequate; $32.50, f.o.b. tank cars; $32.75, f.o.b. tank trucks.
San Francisco: Demand and supply good; $24.50 ton, f.o.b. cars Richmond, Cal.
Minneapolis: Prices unchanged from last week; blackstrap $33, tank truck, delivered; beet $30; blend $31.50.
Seattle: Demand and supply good; trend firm; $24.75, f.o.b. Seattle, tank truck lots.
Kansas City: Demand fair; trend strong; supply ample; blackstrap 13¢ gal., f.o.b. New Orleans.
Louisville: Demand fair; trend firm; supply normal; 13¢ gal., tank car lots, f.o.b. Gulf ports.
Boston: Demand steady; supply adequate; 14¢ gal. in tank cars.
Buffalo: Demand and supply fair; trend steady to higher; 15¢ gal., f.o.b. Albany.
St. Louis: Demand good; trend firm; supply adequate; 13¢ gal., tank car, New Orleans.
Denver: Demand and trend steady; supply ample; 13¢ gal., New Orleans; $37.43 ton, Denver.

OAT PRODUCTS

Memphis: Demand poor; trend steady to lower; supply ample; 3½% protein, reground oat feed $29.30.
Philadelphia: Trend unsettled; pulverized white, demand fair, supply fair $47.80; domestic, demand fair, supply light $29.50; Canadian oat feed, demand fair, supply very light $34, sacked, nominal.
Los Angeles: Demand slow; trend unchanged; supply adequate; local production, pulverized $67, sacked.
Ft. Worth: Demand slow; supply sufficient; 10% protein oat millfeed $43.20, reground $31.30, sacked.
Cincinnati: Demand poor; trend higher; supply adequate; pulverized white oats $45@51.
Louisville: Demand fair; trend steady; supply normal; reground $29.90, down 50¢; rolled oats $70.90; feeding oatmeal $74.40; pulverized white $49.90; crimped white $63.40; all sacked.
Minneapolis: Demand good; oat market steady; product prices unchanged from last week; feeding rolled $74, sacked; feeding oatmeal $63, sacked; pulverized $41, sacked; crimped $58, sacked; reground $24, sacked.
Boston: Demand slow; supply spotty; white pulverized, sacked $53; reground oat feed $26.
Seattle: Demand fair; trend steady; supply fair; oat feed $57, delivered truck lots, 38 lb. or better.
Chicago: Demand and supply fair; trend steady; reground oat feed $26; No. 1 fine ground feeding oatmeal $70; feeding rolled oats $74.

OYSTER SHELL

Cincinnati: Demand fair; trend steady; supply adequate; 80 lb. bags $23.85, 50 lb. bags $24.10, 25 lb. bags $26.35.
Los Angeles: Demand fair; trend unchanged; supply ample; $15.40, sacked.
San Francisco: Demand fair; supply ample; local $15, eastern $26, sacked.
Seattle: Demand and trend steady; supply good; eastern $36, delivered carlots, sacked.
Boston: Demand and supply steady; in paper $26.52.
Louisville: Demand fair; trend steady; supply good; in 80 lb. paper sacks $23.95; in 50 lb. paper sacks $24.20; in 25 lb. paper sacks $26.45.
Portland: Demand dependable; trend unchanged; supply ample; $27.50@35, sacked.

PEANUT OIL MEAL

Milwaukee: Demand limited; trend slow; supply adequate; 26% $41 bulk, $45.50 sacked, both Chicago basis.

PEAT MOSS

Los Angeles: Demand fair; trend unchanged; supply ample; Canadian 5.6 cu. ft. bales $3.65.
Philadelphia: Demand slow; supply fair; $2.85 a bale, f.o.b. pier.
Cincinnati: Demand and supply good; trend steady; truck loads $3.45 a bale, f.o.b. Cincinnati.
San Francisco: Demand and supply fair; $3.65 a bale.
Boston: Demand and supply steady; $2.15 a bale in carlots.
Seattle: Demand poor; trend steady; supply good; $2.60 a bale, delivered truck lots.
Portland: Demand slow; trend steady; supply adequate; $3@3.15 per 5.6 cu. ft. bale.
Chicago: Demand and supply fair; trend firm; standard 7½ cu. ft. bale $3.80.

POTASSIUM IODIDE (U.S.P.)

Cincinnati: Demand good; trend steady; 99% KI in calcium stearate or carbonate mixtures: 250 lb. drums $1.35, 200 lb. in 100 lb. drums $1.35, 100 lb. drums $1.38, 25 lb. drums $1.49, f.o.b. Cincinnati.
Chittenango, N.Y.: Demand good; trend firm; supply adequate; standard trace

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mineral blends: 99% U.S.P. K.I. and 10% calcium stearate, magnesium carbonate or calcium hydroxide: 100 lb. drums $1.42 lb.; 200 lb. and up $1.40 lb.; delivered basis.

POULTRY BY-PRODUCTS

Los Angeles: Demand and trend steady; supply adequate; $1.20 a unit of protein, sacked.

Boston: Demand good; supply light; $70, f.o.b. shipping point.

Salisbury, Md.: Meal demand very good; supply ample; $67, f.o.b.

RIBOFLAVIN

Cincinnati: Trend steady; feed grade (in feed supplements) 4¢ gm. in less than ton lots in 2.36 to 16 gm./lb. mixtures; 3¢ in ton lots or more, freight prepaid or paid to destination.

RICE BY-PRODUCTS

Ft. Worth: Demand good; supply moderate; rice bran $34@35, f.o.b. south Texas rice mills, sacked; hulls $4.50, sacked.

Los Angeles: Demand slow; trend unchanged; supply adequate; California production, high fat content, bran $49@50, sacked.

San Francisco: Demand good; supply ample; bran $40, sacked.

SCREENINGS

Cincinnati: Demand good; trend easier; supply tight; unground grain screenings $24@25.

Chicago: Demand fair; trend steady; supply moderate; ground grain $30; Canadian $26.

Minneapolis: Demand fair; supplies remain limited in Canada; Canadian steady at $31 for December, $32 for January; domestic ranges unchanged, lights $8@12, mediums $13@20, heavies $21@30; another $1 boost in 15% flax screenings to $37.

Buffalo: Demand fair; trend steady; supply fair to good; ground, sacked $36.50, New York; unground, bulk $28.50, New York.

SOFT PHOSPHATE
(Sacked, delivered)

Atlanta: $20.65.
Buffalo: $25.50.
Chicago: $24.90.
Cincinnati: $23.64.
Des Moines: $25.42.
Kansas City: $25.07.
Memphis: $22.28.
Minneapolis: $26.12.
Philadelphia: $24.51.
St. Louis: $24.32.

SORGHUMS

Los Angeles: Demand good; trend firm; supply tighter; milo $2.17½ cwt.

Ogden: Supply ample; $40@41.

Ft. Worth: Demand fair; supply sufficient; No. 2 yellow milo $1.94@1.96 cwt., delivered Texas common points.

Seattle: Demand and supply good; trend firm; $45, delivered carlots.

SOYBEAN OIL MEAL

Milwaukee: Demand and supply fair; trend strong; $51, Decatur.

Omaha: Demand good; trend strong; supply tight; 44% $56.70, delivered Omaha.

Memphis: Demand fair; trend steady to higher; supply ample; prime 44% solvent $54, f.o.b. Memphis.

Philadelphia: Demand and supply fair; trend unsettled; 44% $49, Decatur.

Ogden: Supply ample; 41% protein $70@71; 50% protein $75@76.

Los Angeles: Demand slower; trend much firmer; supply ample; $71.60@72.60.

Ft. Worth: Demand good; supply sufficient; 44% $57@59 December, $58@60 January; 50% $62@64 December, $63@65 January.

Cincinnati: Demand poor; trend higher; supply adequate; $51.50, Decatur.

San Francisco: Demand fair; supply ample; $69.10.

Boston: Demand active; supply fair; 44% $49.50, 50% $54, both f.o.b. Decatur.

Louisville: Demand good; trend very strong; supply normal; $63.50, sacked, up $5.50.

Kansas City: Demand fair; trend strong; supply adequate; 44% solvent process $49.50@50, Decatur.

Seattle: Demand good; trend firm; supply ample; $72.60, delivered carlots.

Portland: Demand fair; trend higher; supply adequate; $72.80@73.10.

Chicago: Demand very good; trend much higher; supply fair; Decatur basis, 44% protein, unrestricted billing $52, E.T.L. $49.50; 50% protein, unrestricted billing $57, E.T.L. $54.

Wichita: Demand good; supply ample; 44% $50, 50% $55, sacked; 44% $56, 50% $61, bulk, f.o.b. Wichita.

St. Louis: Demand good; trend higher; supply ample; 44% $55.

Denver: Demand good; trend steady; supply ample; 44% $55.

TANKAGE

Chicago: Demand and supply fair; trend steady; 60% protein $75, sacked.

St. Paul: Demand good; supplies ample, gain of about $2 over last week's price; $74@75.

Wichita: Demand heavy; supply about offsets demand; 60% $80, f.o.b. plant, sacked.

Omaha: Demand good; trend strong; supply fair; $75.

Ft. Worth: Demand good; supply limited; 60% digester $72, sacked, Ft. Worth.

Cincinnati: Demand good; supply short; trend stronger; 60% digester $71.50, Cincinnati.

Kansas City: Demand good; trend strong; supply tight; 60% digester $72.50.

Louisville: Demand fair; trend steady; supply good; 60% protein $80@85, sacked.

St. Louis: Demand good; trend firm; supply limited; $81.50.

UREA FEED COMPOUND

Woodstock, Tenn.: Minimum 42% nitrogen, 262% protein equivalent; $100, bagged, f.o.b. freight equalized with nearest producing plant; bulk $96.

Lima, Ohio: Minimum 42% nitrogen, 262% protein equivalent $100, f.o.b. bagged.

Pryor, Okla.: Minimum 42% nitrogen, 262% protein equivalent; $100, f.o.b. bagged; $96, bulk, cars or trucks, freight equalized with nearest producing point.

New York: Minimum 42% nitrogen, 262% protein equivalent, $100, f.o.b. bagged; $96, bulk, cars or trucks, freight equalized with nearest producing point.

Belle, W. Va.: Minimum 42% nitrogen, 262% protein equivalent; $100, f.o.b. bagged; $96, bulk, cars or trucks, freight equalized with nearest producing point.

VEGETABLE AND ANIMAL FAT (HYDROLYZED)

Ft. Worth: Demand good, supply limited; 5¢ lb., f.o.b. north central Texas.

VITAMIN E FEED SUPPLEMENT

Cincinnati: Demand good; trend steady; 50 lb. or more $1.40, less than 50 lb. $1.45, freight allowed to destination.

WHEAT GERM MEAL

Minneapolis: Price decline continues; down $5 from last week to $48, jutes.

Buffalo: Demand fair; trend steady; supply fair to poor; commercial grade $64, sacked, f.o.b. Buffalo.

NEW EFFORTS

(Continued from page 1)

be improper diagnoses, and the veterinarian's carrying on what are said to be unqualified or improper actions in the nutrition and feed area. But, while recognizing these problems, several conference speakers also called attention to both the need and the opportunity for some new and joint activities in the way of preventive medicine, animal health and feeding programs to serve bigger, more specialized livestock and poultry producers of various types. In working toward these ends, leaders in both groups say they will "go to the summit" and also work concretely for action right on the farm.

The two-day conference this week at the Hotel Continental in Kansas City was the third such event sponsored by the Midwest Feed Manufacturers Assn. in cooperation with state veterinary medical associations in the Midwest's eight-state area.

To Continue Conference

Some persons had wondered whether the conference and other efforts should be continued. For one thing, so far as the feed industry is concerned, it was noted that vets far outnumber feed men in attendance at the conference. However, the Midwest Veterinary-Nutrition Council, made up of feed men and vets in the Midwest's area, voted unanimously to continue the conference, feeling that it is a worthwhile endeavor, and to make it a self-sustaining program. And, as it turned out, attendance at this year's conference (some 275 persons) was actually well ahead of a year ago.

While the value of regional, local and other meetings was cited, the feed men and veterinarians also were reminded that it is a meeting on a livestock producer's farm that really counts in bringing about better animal health and nutrition.

The conference brought together authorities on important developments in feeding and feed control, but a good deal of attention also was devoted to the matter of feed-vet relationships. (Also see stories on medicated feed control and feeding disease-free pigs on pages 1 and 7. Summaries of nutrition talks will appear later.)

Prospects for new and better cooperation between feed men and veterinarians were mentioned several times. And it appeared that changes in technology and in agriculture are instrumental in causing new opportunities for teamwork as well as current problems which have resulted in

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part from inability to use technology as fast as it develops.

As demands increase for more and better foods and for bigger and more efficient livestock production in units whose every aspect is well coordinated, joint feed-veterinary action will tend to follow. In fact, some specific joint programs were cited, and there were indications that feed men as well as vets may be missing some good business bets if they do not get in on some programs where each fulfills his own role but at the same time is a member of a feed man-veterinarian-producer business team.

Dr. John Herrick, Iowa extension veterinarian, in a talk appropriately called "Togetherness?", was brutally frank in pointing out problems which find the veterinarian and feed dealer "throwing their arms around one another and promising to 'tackle this together,' and then, when separated, sticking a knife in the other person's back."

He reiterated problems where each gets into the other's domain in ways which bring controversy. So far as the feed industry is concerned, among his observations were these: "It is difficult for me to realize how a feed manufacturer can stand up in a meeting and put his arm around practitioners and proclaim that 'together we are going to help the world make money,' when down in the local elevator where his feed is sold, or in the building or in the car selling his feed, we find animal health products and 'windshield diagnosis' being sold by his salesmen.

"If feed companies are going to be selling animal health products, then they should not be concerned about the veterinarian selling feed. As long as we have the various medicants, drugs and injectables, all sold, administered and prescribed by people other than veterinarians without a proper diagnosis, then there is no wonder that we are going to have an invasion of the feed industry by the veterinarian. Possibly some veterinarians are not properly trained in nutrition, but I question whether 50% of the actual feed salesmen themselves today are properly trained in nutrition . . . . Before we start casting reflections at one another, I think we better take a look at our own field and see how clean it is."

Contract Services

While the various problems were noted, Dr. Herrick also pointed out that new opportunities are developing. For example, there is now more interest in preventive health, not just "rescuing the perishing," and some veterinarians are providing contract veterinary service in pre-arranged disease control programs where all health needs are met for a specified fee, such as $2 per hog marketed. There is no reason, he said, why feed men can't bring in the necessary nutrition program.

Dr. Herrick offered several recommendations—such as more grass roots meetings and then action programs; feed company managements' setting up and carrying out specific programs with salesmen and dealers for developing good relationships with vets (as, he said, some firms are doing); feed industry help in getting better animal health laws; joint work in preventive medicine programs; better selection and training of feed salesmen.

Case Histories

Dr. J. T. Tumlin of Decatur, Ind., veterinarian with the McMillen Feed division of Central Soya Co., also pointed out some of the problems, including ways in which the feed industry irritates vets and vice versa. At the same time, he presented some case studies of grass roots cases of better feed man-vet relationships.

One of many examples is the case of an Iowa McMillen salesman who has a working agreement with a local veterinarian for servicing a feeder pig operation. The vet provides certain services and receives a fee of $1.75 per pig alive at six weeks of age, including medication and vaccines, and the rations are formulated according to feed company formulations.

As an incentive to get vets interested in this type of program, the service fee might be written into the feeder contract, Dr. Tumlin said.

An Indiana dealer has retained a group of three vets for certain services, and the cost is $100 per month. An Ohio dealer has a working agreement with a vet to care for the health of 5,000 feeder pigs; the veterinary service consists of vaccinations, surgery, diagnosis and treatment of diseases; the dealer prepares medications as prescribed.

Company Program

Dr. Tumlin also noted that McMillen has a specific program for improving relationships with veterinarians. This includes such things as these: A statement of policy to salesmen and dealers on large animal service calls; emphasis on good vet relationships in training salesmen; certain suggestions in handling misunderstandings and dealing with vets; study of the possibility of a letter introducing salesmen to local vets.

He went on to list many things which his firm feels can be done by salesmen and dealers and feed companies to improve relationships. Among these are becoming acquainted with vets and informing them of feed services; sponsorship of local meetings; help in passing on nutrition knowledge; joint work in the field; refraining from diagnosing and treating disease; eliminating or reducing sales of drugs, vaccines, etc.; obtaining working agreements with vets for disease control on large integrated operations; seeking advice of vets on management and disease problems.

Veterinarians were advised to accept the changing times and possible new concepts; recognize the era of preventive medicine; become familiar with new nutrition developments; cooperate with dealers and growers in carrying out production programs; take part in feeder meetings; keep up to date with new veterinary medical developments; reevaluate fee systems; try to become better acquainted with feed company personnel; start including poultry as part of the practice and service.

Interdependent Roles

The importance which the veterinary profession attached to the Midwest conference was indicated in the presence on the program of Dr. Mark L. Morris of Denver, president-elect of the American Veterinary Medical Assn.

He stressed the interdependent roles of veterinarians, feed firms and others in the "federation" of various specialty groups concerned with meeting modern food production needs. He noted, too, that the veterinary profession now is an integral part of the great field of medical science.

Dr. Morris mentioned that veterinarians now handle a good share of the medications and vaccines sold to farmers, and this "may represent an income to him while he makes a gradual transition to find his sphere of influence in our federation of industries and professions . . . The future of the man with the D.V.M. degree is not in dispersing medicated feeds. He is as rapidly as possible establishing his sphere of influence in the application of his professional services as a diagnostician, as one well trained in the management of disease . . . The veterinarian must do the job of preventive medicine; he will make his livelihood from the application of his professional service . . .

"More effective means of communication among the groups (in the federation) must be developed."

Dr. Morris, like others, noted that, with the realignment of animal production and large, integrated units, adjustments in veterinary services are needed. In this connection, the veterinary association is making a self-survey so that services, training and research can be adjusted and improved.

"The veterinarian of tomorow," he said, "is going to be more skillful in adapting his professional service, the only commodity he really has to sell. He is not going to be dependent upon the sale of drugs, pharmaceutical feedstuffs or any other commodity . . .

"The sale of medicated feeds or first aid treatment for sick animals provided by feed companies or county agents is not going to replace the veterinarian. Such activities in the final analysis will only place a further demand for this well trained man's professional service, judgment and diagnostic ability." The changes in agriculture and the larger, more complex production units will make the veterinarian's services still more important.

Dr. Morris said that the association is moving in the area of professional and public relations, and this will be reflected at the grass roots level. Efforts will be made to improve communications with others, and in this connection he mentioned plans to work with groups such as the American Feed Manufacturers Assn. "We believe," he said, "that if sound decisions on policy are made at the top, much can be accomplished."

Local Activities

Lloyd Larson, executive vice president, discussed industry-veterinary relationship efforts made in the Midwest area. He said that the conference and other activities should prove still more fruitful.

He traced the development of the Midwest's program, including grass roots meetings and other activities in certain states, and the formation of the Veterinary-Nutrition Council to help plan and carry on activities.

Mr. Larson described a program of local meetings between feed men and vets in Kansas, where each group acquainted the other with problems and information in its field. Also, he outlined results of a Kansas survey which brought out both problems and new activities and opportunities for cooperation.

He observed that in some instances veterinarians have shown more interest, and feed men will have to show that they will support needed programs.

Problems in Coordination

Dr. C. B. Ratchford, Missouri extension director, advised the conference audience that with the new technology and changes in agriculture, it will be a case of "adapting or dying" for those serving agriculture.

Specialization and new technology, he said, have created problems in coordination, although at the point of use, things like animal health and nutrition are combined. Technology has moved faster than the ability to use it.

At times there are conflicts of interest but, in the future, there will have to be more teamwork, at local as well as higher levels, and veterinarians, feed men, colleges and extension people all will have to team together more effectively.

As Mr. Larson put it, "it is time to graduate from the conversation stage in veterinary-feed industry relationships and do something." He urged trying to do things which can be done now, even though not everything necessary for harmonious relationships can be accomplished immediately.

New Poultry Council

WINNIPEG — A poultry industry council, composed of representatives of all segments of the poultry industry, should be organized in Manitoba early in 1961.

Members of various associations within the poultry industry generally agreed, during an exploratory meeting, that an industry-wide advisory council was needed to coordinate production and marketing of poultry products.

STORAGE

(Continued from page 1)

and the fact that practically all of the storage in this area is filled to capacity at present. Various reports indicate that the new wheat crop is off to a good start in most of the southwest wheat belt.

"In view of these conditions, we feel that a tight storage situation will exist from the time of the small grain takeover (March 31, 1961) through the 1961 small grain harvest. This situation may be relieved somewhat if additional space is erected in the areas where it is needed. You may wish to consider the building of additional space in your planning for next year."

States comprising the Kansas City District are Kansas, Nebraska, Missouri, Colorado and Wyoming. CSS is conducting its annual survey to determine from country warehousemen how much grain they would like moved from their houses between now and the 1961 small grain harvest. This information will be used by the grain storage advisory committee in its deliberations during a meeting planned for early January. At that time, it is hoped that an accurate estimate of the amount of storage space needed can be made.

How much new storage space will be built before the small grain harvest next fall is one of the key questions that CSS and the advisory committee will attempt to answer. So far in 1960, the Kansas City CSS office has approved 65 million bushels of space under the Uniform Grain Storage Agreement.

In his letter, Mr. Smith points out that "in order to make any sizeable movement from the country, we will have to move grain out of the terminal elevators to other areas to make room. Our movement out of this area will be limited to the availability of space in other areas as well as authorization for such movement."

Tightness Cited

In the Kansas City district, CSS bin sites are filled to approximately 75% of capacity, with room for possibly 38 million bushels. Taking into consideration the current tight storage situation of commercial operators and the bright outlook for the 1961 crop, trade sources estimate that in the Kansas City district there is a need for approximately 65 million bushels of space.

This tightness could be relieved, somewhat, if there were movement to the Dallas CSS area, where there reportedly will be about 10 to 20 million bushels of available space. However, any such movement, as well as movement to such storage installations as the "mothball" ship fleet, would be contingent on the policies of the new U.S. Department of Agriculture administration.

A new reconcentration program, if a large amount of grain is involved, would likely start right after the first of the year in order to move the quantity needed without overburdening the railroads, inspection facilities and the warehousemen.

Production School to Be in Kansas City

KANSAS CITY — Final arrangements have been completed for the 1961 Feed Production School to be held Sept. 11-13 at the Continental Hotel in Kansas City.

The location of the 1961 school was announced following a recent meeting in Kansas City.

"After a check with production men and allied firms, we concluded that the Kansas City location and the facilities at the Continental were most satisfactory," said Lloyd S. Larson, president of Feed Production School, Inc. "Allied firms will again have an opportunity to utilize the entire fourth floor of the hotel for their displays."

GTA

(Continued from page 7)

grain business include:

—"The federal loan program in which the government takes a larger share of a diminishing grain volume from the cash grain markets;

—"The government's 20% cut in storage rates on grain, and

—"The administration's policy of raising interest rates on loans."

Of the 1959-60 savings, Mr. Thatcher reported, GTA patrons will receive $586,545 in cash refunds and another $2,053,170 in capital equity (stock) certificates for redemption at some later date. A total of $293,302 went into the capital reserve, also allocated to patrons.

Farmers Union state organizations in Minnesota, North Dakota, South Dakota and Montana received $146,640 from GTA savings for use in cooperative education and promotion. Mr. Thatcher said patrons' capital equity and reserve in GTA now amounts to $40,207,784.

Mr. Thatcher told GTA delegates that the cooperative's expansion program includes: Purchase of the Honeymead Products Co. oilseed processing plant at Mankato, Minn., "the world's largest"; purchase of the Archer-Daniels - Midland Commander line of 38 elevators and four subterminal elevators in southwestern Minnesota; construction of two semi-automated feed plants, one at Edgeley, N.D., and another at Ellis, S.D., and improvement at GTA's 20-million-bushel terminal at Superior, Wis., to make it more accessible to ocean-going vessels.

Interrelationship

Dwayne Andreas, who was named GTA's assistant general manager after the cooperative bought Honeymead in September from Mr. Andreas and his brother, Lowell, explained the "wisdom behind GTA's expansion into the oilseed business" by pointing to an interrelationship between soybeans and the Northwest's traditional wheat crop.

"Wherever in the world wheat is used," he said, "some form of fat is used with it, usually as shortening to assist in the baking process. And in many parts of the world—such as the Mediterranean area—it is common practice to simply dip a piece of bread into olive oil or soybean oil at the supper table."

Lowell Andreas is manager of the Mankato soybean and flaxseed plant which annually converts about 15 million bushels of soybeans into oil, meal and other commodities.

EGG PROMOTION

(Continued from page 6)

firm and manufacturer of nitrofurans, Ashland, Ohio, and the Morton Salt Co.

Gov. Edmund G. Brown will issue an official proclamation or endorsement to open the month-long drive to call attention to the promotion of the egg—one of California's leading products.

The January promotion will be kicked off with two luncheons—the first at the Statler-Hilton Hotel in Los Angeles Jan. 4 and the second at the Sheraton-Palace Hotel in San Francisco Jan. 5. In attendance will be producers, feed manufacturers, hatcherymen, state agricultural commissioners, extension service personnel including farm and home advisors, newspaper farm editors, radio and television farm directors, newspaper and trade food editors, chamber of commerce personnel, retail and chain grocery executives and California Department of Agriculture officials.

In connection with the campaign, the following steps are being taken to call attention to the "Golden Goodness of California Fresh Eggs":

(1) Hess & Clark, utilizing art work supplied by Morton Salt, has purchased outdoor billboard space which will register an estimated 30,000,000 impressions in January.

(2) Morton Salt will place 3,000 "Start the New Year Right—Enjoy the Golden Goodness of California Fresh Eggs" posters in retail grocery outlets. In addition, Morton is building special salt and egg displays.

(3) Feed company trucks will carry the campaign message via 47 x 16 in. streamer posters.

(4) Thousands of three-color placemats emphasizing to consumers "21 Ways to Enjoy Eggs" will be distributed to hotels and restaurants by California egg industry members, supplied through courtesy of Hess & Clark.

(5) Coeds from the University of California at Los Angeles and San Francisco State College will pass out glassine bags with salt and pepper dispensers and recipes furnished by the Poultry & Egg National Board to consumers in Los Angeles and San Francisco.

GRAIN STORAGE

(Continued from page 6)

strength to withstand winds of great force.

Only a limited number of the installations are to be sold now to farmers and elevator operators with the understanding that no warranties will be given until field tests are satisfactorily completed, officials said.

CONDEMNATIONS

(Continued from page 3)

formation on changes in policy, considerable confusion has resulted. It was also suggested that better descriptive language be used in instructions so that laymen can interpret them more clearly.

Thorough Research

Further, it was suggested by some members attending the conference that the inspection service should make changes in rules only after very thorough research to substantiate the proposed changes. For example, one processor said a new regulation proposes the use of one half gallon water overflow per bird in his chilling system and that the temperature be maintained at a certain level and checked with thermometers.

If there is a proven need for making "such costly changes," the processor said, he would be happy to make the change but "there should be facts to back up such recommendations."

There have been some changes for the better in condemnations recently, several of the poultrymen attending pointed out from the floor. This has been brought about by clarification of inspection service regulations and closer cooperation between the processors, through a consulting committee and the inspectors.

PRESCRIPTION

(Continued from page 3)

tions of such use. For the certifiable antibiotics, there is published a section in the antibiotic regulations which is called the "antibiotic feed regulations" (146.26). This section describes all of the drug combinations that have been approved for the certifiable antibiotic drugs and what dosage levels can be used for the drugs involved. If the veterinarian prescribes these drugs differently than as outlined in these regulations, then the responsibility is upon him for the safety and efficacy of the drug. Not only must the drug be safe to the animal, but the veterinarian must remember that the drug must also be safe to the human who consumes the products from the treated animal.

For new drugs, there are no published regulations. The conditions under which these drugs can be used in animal feeds are as authorized in the effective new drug applications. No feed mixer may use a new drug substance either as such or in the form of premixes, without first obtaining an effective new drug application or an effective Antibiotic Form 10 for such use. Generally, the new drug manufacturer may not legally market his product to a feed mill or any other person who does not have such authorization. As such, premixes of new drugs for use in medicated feeds are not available to any person, not even to the veterinarian, unless he holds an effective application. The veterinarian may prescribe the final dosage form as outlined in the application; however, he himself cannot indulge in the practice of adding such premixes of a new drug to poultry or livestock feeds unless he holds an effective application.

The reason why the distribution of new drugs is limited to these individuals with effective applications is to make sure that the drugs used are compatible and adequately mixed in feeds to give a homogeneous character as required for the medicated feeds containing the new drug. Normally, we would not expect a veterinarian or livestock owner to have available facilities to properly mix these drugs in feeds. Varying intakes of some drugs among animals may cause deleterious effects. Excessive dosages may not only be toxic to the animal but they may result in residues in the tissues of the animals or their products which are higher than the tolerances that have been established for the drug. The presence of residues in edible products where toxicity data indicate that a lower or zero tolerance should be set would result in adulterated feed being produced by improper medication. We feel this can be prevented to a great extent by controlling the use of the drug from the time it is manufactured until it is consumed. We maintain, therefore, that concentrations and premixes of new drug substances should be shipped only to individuals or firms which have an effective new drug application.

The purpose of our regulations is to ensure that the drug in use will be safe not only to the animal, but also to ensure the protection of the ultimate consumer of animal products. In some cases there must be a withdrawal period prior to slaughter to provide for the elimination of the drug residues from the tissues of the animal. I am sure that you are all familiar with a number of these withdrawal requirements. Feed tags are required to carry them. For example, a withdrawal period of five days is required for arsanilic acid. For glycarbylamide, a withdrawal period of four days is required. For hygromycin B, a withdrawal period of two days is required. And so it goes. The purpose of these withdrawal periods is to make the edible tissues from the treated animal safe for human consumption.

PHILOSOPHY AND CONTROL OF MEDICATION—We all recognize the public health importance of observing the directions for use for which a drug may be employed, including the species of animal to which the drug may be given, the dosage recommendation, and the withdrawal period. Although a veterinarian may be considered generally qualified to determine other ways in which a drug may be safe for the animal, it would be hazardous to assume that his professional training as a veterinarian would enable him to assess the safety of a new use of a drug with respect to the drug residues in the edible products of the food animal. Using drugs for which there is no authorization is, in our opinion, in conflict with ethical practices of medicine and the terms of the law.

The idea is sometimes gotten that a drug substance may be used without concern provided both the feed mixer and the grower are located in the same state. However, we believe that such a practice would break down our entire drug control system, and there would be no purpose for having it in the first place, if anyone could make up his own mind as to how much of a new drug he could use and when he could use it. We are convinced that the public health interest would suffer from such an interpretation. Since new drug substances are moved in interstate commerce, they must be subject to the federal law and they cannot lose their interstate identity by merely having the grower and the mixer in the same state. In effect, the federal law provides that no one can alter a drug received in interstate commerce in any way that they may not have legally altered such drug prior to its shipment.

The thought naturally arises in the minds of many of you that we in the Food and Drug Administration are controlling the practices of veterinary medicine. We do not believe that this is so. Our position is to prohibit the use of drugs in veterinary medicine which have not been shown to be safe for such use. Our concern is not only with the safety to the animal population but with the health of the consumer who eats the edible products of treated animals. The veterinarian in his practice must be cognizant of his primary responsibility to the health of the public. The veterinarian can determine what drug is the drug of choice for the disease to be treated and prescribe those drugs that are at his disposal. He can ad lib to the extent that he uses drugs that are safe and efficacious. If a veterinarian has a drug which he believes to be safe and effective for its intended use but which has not been approved for such use, he may submit an application to the government for consideration. Without adequate scientific data on a drug a veterinarian generally cannot predict what effect the drug will have on tissue residues and the consumer who eats those products. If the veterinarian prescribes a drug which results in a violation of the federal law, he may be opening himself up to a malpractice suit.

SUMMARY—In summary, we may say that with respect to the use of drugs, the veterinarian may prescribe and the feed mixer may mix those drugs that are not regarded as new drugs and which may be available in interstate commerce for prescription compounding. Also, the veterinarian may prescribe those dosage forms of drugs for which there are new drug applications effective. However, for the feed mixer to mix a new drug in a feed he must hold the effective application on the drug.

In general, the guide as to what may be legally prescribed by a veterinarian, and under what conditions use can be made of the drugs, is their availability and the labeling of each drug. Any drug substance which is considered a new drug is not available for prescription compounding by a veterinarian. This is no different from those new drugs available for human use. Any new drug substance which would cause a finished drug to be a new drug, cannot legally be shipped in interstate commerce for prescription compounding, either to fill the prescription of a veterinarian or a medical doctor.

The Food and Drug Administration has the responsibility for safe use of all drugs and intends to uphold this responsibility. Where neither the shipper nor the feed mixer has an effective new drug application or a proper exemption under the antibiotic regulations covering the finished feed, it may be possible for the government to support seizure of the medicinal substance, seizure of the finished medicated feed, citation of the shipper, or citation of the operator of the feed mill.

MARKETS

(Continued from page 2)

so have been hindering deliveries of farm animals to slaughter houses and of poultry and eggs to wholesale markets, and some shortages of supplies in retail outlets have been reported. But reserves of frozen meats and storage eggs are expected to be sufficient to prevent any emergency, because severely cold weather usually is of short duration in the Ohio Valley.

South Central

Formula feed sales showed small improvement this week, helped to some extent by colder temperatures in the area and also by an upward trend in feed ingredient prices. Feed men say that business so far this month measures up to that of the same period last year, which is what they have been hoping for.

Shipments against cattle feed bookings are reaching sizeable proportions but other lines are also moving well. Manufacturers cite the continuing good feeding ratio as the reason that hog feed sales have held at such a high level despite the urgent need to get high moisture corn feed without delay. Egg feed sales held up well. Market observers predict that the decline in egg prices has been halted.

Mill production is being maintained at a steady rate. All plants are operating on a five-day basis, some are filling out production with Saturday runs.

Mountain States

Dealers report that feed prices generally are somewhat down from the same period of last year but that volume sales are up generally. Cattle feeds are moving well now and prices are about the same, but volume is up. The heavy winter weather, unusual for this time of year, has placed cattle in feed yards. Dealers also report that turkey feeding looks much better for next year than this year.

SWINE RATIONS

(Continued from page 7)

SPF swine are no more demanding than for diseased swine. In fact, there is evidence to suggest that nutritional requirements may be less when a disease load is removed from an animal. . . .

"The nutritional requirements may not actually differ, but the transition from basically a liquid diet in isolation units to dry diets on the farm certainly places a stress on the pig. In addition, changing the pig from a restricted environment to one that is more complex probably causes many stress interactions."

9-Point Program

Because of these factors and the initial investment involved in establishing a primary SPF herd, the following 9-point feeding program was suggested by Dr. Peo:

1. Liquid milk diets for pigs in isolation units. Introduce a highly palatable creep starter ration after the first week. Palatability is important because pigs fail to eat a starter when milk is available.

The veterinarian will look to the feed man for help in this area, Dr. Peo said. Total volume of feed for labs will not be large, he observed, but manufacturers may be wise to work in the area as a service and to impress producers with the fact that they can do a good job.

2. When pigs are delivered to the farm, feed 5 to 10 lb. of a highly palatable pre-starter ration in meal form. Meal is recommended because many pigs do not know how to eat dry feed when they are removed from the isolation units. They try to "slurp" their feed and do poorly on pellets. This may explain why some pigs seem to "stand still" after removal from isolation units.

3. After the pre-starter, feed a 20% protein starter for four weeks. At least 20% dried skim milk in the ration is recommended.

4. Following the starter, feed a 16-18% protein grower ration for four weeks. This can be basically a corn-soy ration.

5. After the grower, feed a 14% protein growing-finishing ration until the pigs weigh about 125 lb.

6. Feed a 12% protein growing-finishing ration until the pigs join the breeding herd or are sold at market weight.

7. A grain-supplement feeding regime may be substituted for points (5) and (6).

8. Antibiotics should be included in the pre-starter, starter, grower and 14% protein growing-finishing rations at levels currently recommended. The SPF program is designed to eliminate certain viruses. Other microorganisms are not eliminated, so antibiotics still have a role to play in the nutrition of SPF swine.

9. When primary SPF swine reach breeding age or weight, the swine producer should continue with his own feeding program if he is satisfied or plan a new life-cycle program with his advisor on nutrition.

After the initial herd is established, management of SPF swine does not differ appreciably from a good management program for diseased stock. Additional management points include: Not permitting SPF swine to come in contact with non-SPF stock; taking various steps to prevent introducing disease by visitors or others; not allowing outside trucks to enter the hog lot; protecting herd from hog cholera; maintaining a closed herd.

Dr. Peo cited some Nebraska test results to show that gains and feed efficiency in SPF herds are considerably better than in contaminated herds.

He observed that the SPF program is not a 100% thing, for there have been some breakdowns. It can fail, but proper work and cooperation among those concerned can make it successful.

The program, he said, is no more demanding than programs already followed by good producers. In reality, it is just another aspect of good swine management.

FEED YARD CHARTER

TOPEKA, KANSAS—Liberty Feed Yards, Inc., Hillsboro, Kansas, has been granted a charter to operate as a livestock feeding business. Allen W. Pankratz has been named resident agent. Capitalization of $65,000 was authorized.

Exports, Cold Weather Advance Meal Futures

MEMPHIS, TENN.—Most prices of oilseed meal futures advanced substantially on the Memphis Board of Trade during the past week. Better export demand and cold weather over the nation proved beneficial to futures prices.

A firm base was established in soybean oil meal from lower levels during the time of plentiful supplies. Cash soybean oil meal was improved, particularly in relation to nearby shipment. The export interest stemmed from plans of Spain to buy soybean oil meal, pit observers said.

The cottonseed oil meal market was quiet. But prices rallied on news of frigid weather, after they had dropped earlier as the result of on-track conditions and slow demand. There were some reports of storage for cottonseed oil meal the past few months because of unseasonally warm weather, it was said. Since supplies accumulated, a downward price adjustment developed, after which cold weather brought quotations higher.

Eastern Trunk Line soybean oil meal closed Dec. 13 50¢ lower to $1 ton higher than on Dec. 6. Unrestricted soybean oil meal was 65¢@$4 higher. Bulk solvent cottonseed oil meal was unchanged to $1.25 higher.

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some Questions

we are asked in the trade...

What are the significant trends in the dehydrated alfalfa industry today?

A One very definite development is the growing demand for "dehy" from the big commercial feed lots and Western breeding herds.

How do you account for this?

A Cattle feeders who use dehydrated alfalfa to "spike" or fortify local roughages, find they are getting better feed conversion. In breeding herds, range men say percentage of calf crop is higher, calving is easier, and fewer breeding problems develop when they feed "dehy."

Are cattle feeders interested in the Pro-Vitamin "A" content of the "dehy"?

A Yes, definitely! They are ordering and feeding guaranteed quality dehy alfalfa in the same way we have come to expect feed manufacturers making critical type poultry feeds.

Are there any other important trends?

A In our own experience at NATIONAL, we are also impressed by the growing demand for the higher quality grades of our product.

Does this mean that the higher grades now form an important part of your total sales volume?

A Yes, and it is growing fast. During each of the past four years, demand for our higher quality alfalfa has stepped up 10% over the year before.

Where is the greatest interest in your higher grades?

A In the specialized broiler and layer installations, where consistent levels of pigmentation are so important in broiler finishing and egg yolks. This demand further demonstrates the need for the feed manufacturer to produce feeds designed specifically with the ultimate market in mind.

NATIONAL PRO 17
17% Protein
100,000 "A" on arrival
27% max. Fibre

NATIONAL Hi-N
18% Protein
125,000 "A" on arrival
23% max. Fibre

NATIONAL 20% Broiler-Layer Grade
20% Protein
150,000 "A" on arrival
20% max. Fibre

NATIONAL'S famous Quality Control, 6 complete analyses of the alfalfa in each shipment, means consistently higher levels of essential nutrients in the alfalfa delivered to you. You receive Certificate with each shipment.

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